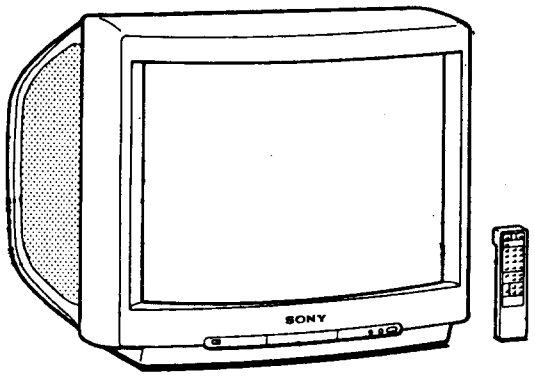
KV-2954MI
RM-687D

SERVICE MANUAL

Hong Kong Model

Chassis No. SCC-E25C-A



GP-1A CHASSIS

MODELS OF THE SAME SERIES	
KV-2954MI	KV-2954MT
KV-2964HN	KV-2954BMT
KV-2964MT	

SPECIFICATIONS

Television system M, B/G, I, D/K

Color system PAL, SECAM, NTSC3.58, NTSC4.43

Channel coverage

Television system	M	B/G	I	D/K
Low VHF band	A2-A6	E2-E4	–	R1-R5
High VHF band	A7-A13	E5-E12	–	R6-R12
UHF	A14-A79	E21-E69	B21-B68	R21-R60

Picture tube: Trinitron tube
Approx. 72.4cm (29inches)
110-degree deflection (Approx. 68cm picture measured diagonally)

Antenna: 75-ohm standard coaxial socket

Speakers: Woofer 10cm ϕ ×2
Tweeter 5cm ϕ ×2

Audio output: 6W+6W

Inputs: VIDEO INPUT jacks : phono jacks
S-TERMINAL VIDEO INPUT jack : 4-pin DIN
Video : 1Vp-p, 75ohms
Audio : 500mVrms, high impedance

Outputs: MONITOR OUT jacks : phono jacks
Video : 1Vp-p, 75 ohms
Audio : 500mVrms, low impedance

Power requirements: 110-240V AC, 50/60Hz

Power consumption: 170W

Dimensions (w/h/d): Approx. 845×582×543mm (33 3/8×23×21 1/2inches)

Weight: Approx. 56kg (123 lb 7 oz)

Accessories supplied: RM-687D Remote commander (1)
R6 (sizeAA) batteries (2)
AC power cord plug adaptor (1)

Design and specifications are subject to change without notice.

MICROFILM

TRINITRON® COLOR TV

SONY®

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WARNING !!

AN ISOLATION TRANSFORMER SHOULD BE USED DURING ANY SERVICE TO AVOID POSSIBLE SHOCK HAZARD, BECAUSE OF LIVE CHASSIS.
THE CHASSIS OF THIS RECEIVER IS DIRECTLY CONNECTED TO THE AC POWER LINE.

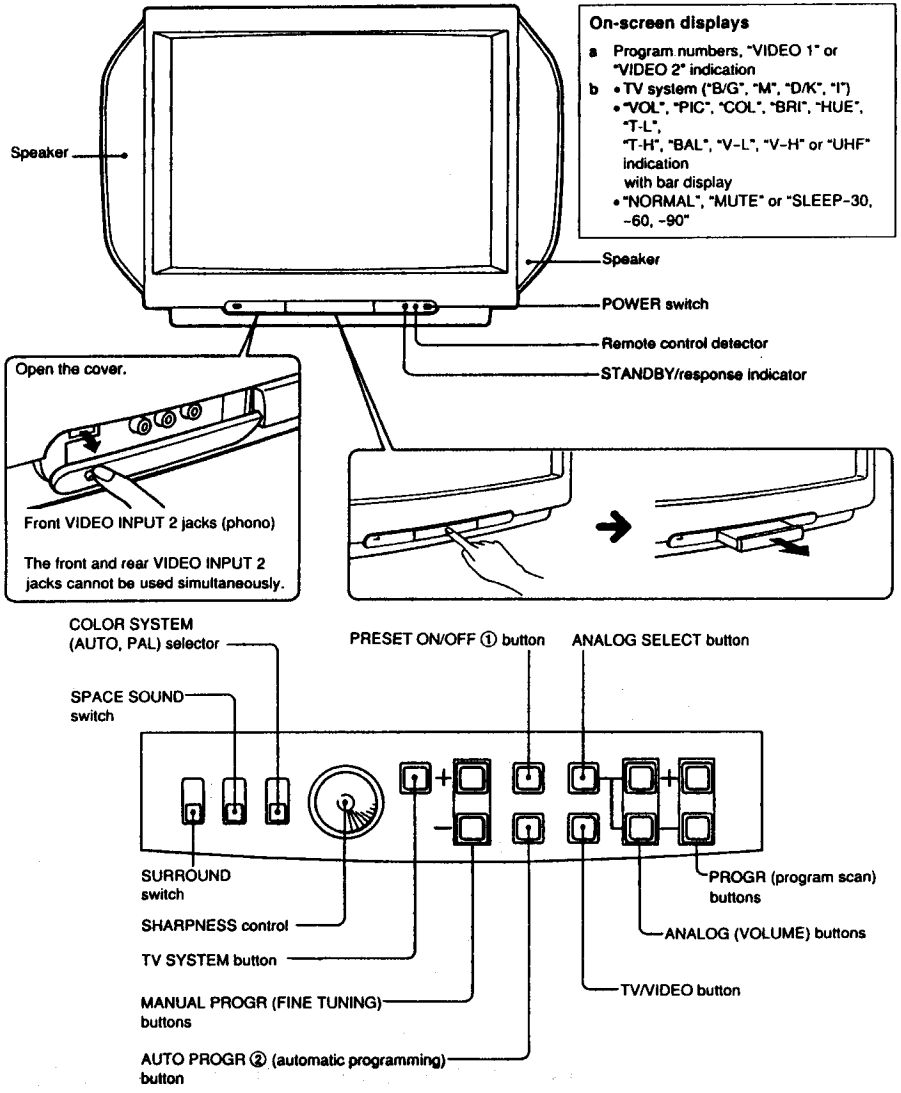
SAFETY-RELATED COMPONENT WARNING !!

COMPONENTS IDENTIFIED BY SHADING AND MARK ⚠ ON THE SCHEMATIC DIAGRAMS, EXPLODED VIEWS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

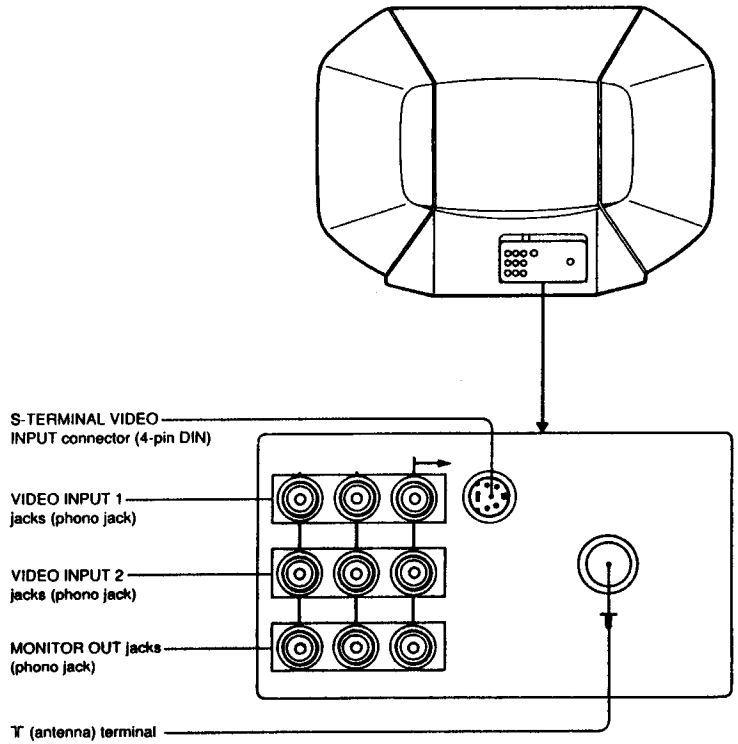
SECTION 1
GENERAL

1-1. PARTS IDENTIFICATION

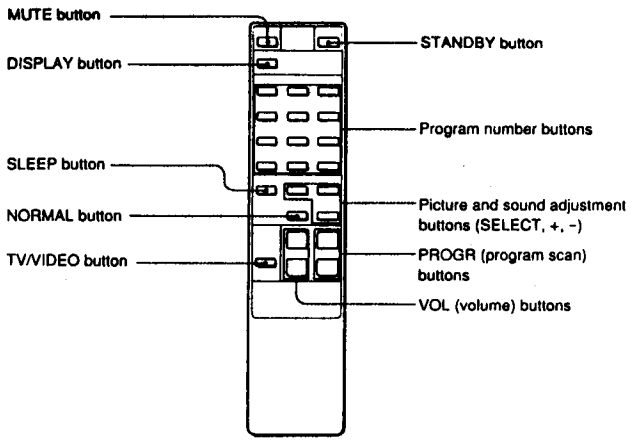
Front


On-screen displays
a Program numbers, "VIDEO 1" or "VIDEO 2" indication
b • TV system ("B/G", "M", "D/K", "I")
• "VOL", "PIC", "COL", "BRI", "HUE", "T-L", "T-H", "BAL", "V-L", "V-H" or "UHF" indication with bar display
• "NORMAL", "MUTE" or "SLEEP-30, -60, -90"
Speaker
Speaker
POWER switch
Remote control detector
STANDBY/response indicator
Open the cover.
Front VIDEO INPUT 2 jacks (phono)
The front and rear VIDEO INPUT 2 jacks cannot be used simultaneously.
COLOR SYSTEM (AUTO, PAL) selector
PRESET ON/OFF ① button
ANALOG SELECT button
SPACE SOUND switch
SURROUND switch
SHARPNESS control
TV SYSTEM button
MANUAL PROGR (FINE TUNING) buttons
AUTO PROGR ② (automatic programming) button
PROGR (program scan) buttons
ANALOG (VOLUME) buttons
TV/VIDEO button

Rear

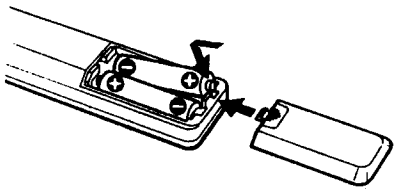

S-TERMINAL VIDEO INPUT connector (4-pin DIN)
VIDEO INPUT 1 jacks (phono jack)
VIDEO INPUT 2 jacks (phono jack)
MONITOR OUT jacks (phono jack)
Ψ (antenna) terminal

Remote Commander — RM-687C



Battery installation

Insert the supplied two R6 (size AA) batteries with correct polarity.



Notes on batteries

- In normal operation, batteries will last up to half a year. If the unit does not operate properly, the batteries might be exhausted. Replace them with new ones.
- To avoid damage from possible battery leakage, remove the batteries for extended unused periods.

Notes on the Remote Commander

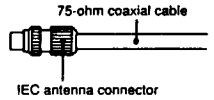
- For selecting programs, press the corresponding number button.
  For program numbers 10 through 19, press "1-", and for program numbers 20 through 29, press "2-" for ten-digit. Then press the required number for the unit while STANDBY/response indicator and channel display on the screen are blinking (for approx. 5 seconds).
- Be sure that there are no obstructions between the Remote Commander and the TV.
- Operable range is limited. The shorter the distance between the Remote Commander and the TV, the wider the angle within which the Remote Commander can control the TV.

1-2. ANTENNA CONNECTION

To connect a VHF antenna or a combination VHF/UHF antenna - round 75-ohm coaxial cable

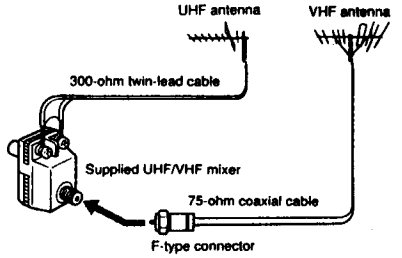
1 Attach the antenna end to an IEC antenna connector (commercially available).

2 Plug the connector into the 75 terminal.



To connect both VHF and UHF antennas

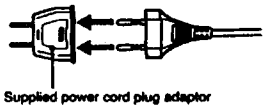
1 Attach the antenna ends to the supplied UHF/VHF mixer.



2 Plug the mixer into the 75 socket.

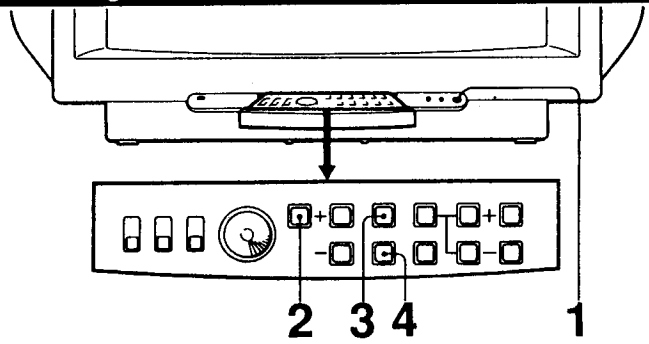
1-3. POWER CONNECTION

Plug the power cord into the wall outlet after antenna connections have been completed.
If the plug does not fit into the wall outlet, use the supplied power cord plug adaptor.



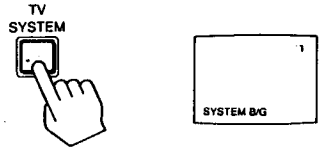
1-4. PRESETTING THE RECEIVABLE CHANNELS

Automatic Presetting

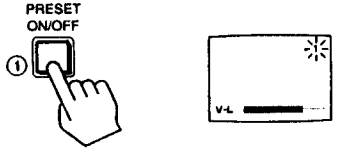


1 **Turn the TV on.**

2 **Select the TV system.** (See page 8.)

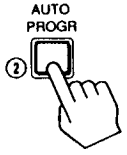


3 **Press PRESET ON/OFF ①.**



Program number on the screen blinks.
A colored segmented bar appears to indicate approximate location of the channel being tuned in.

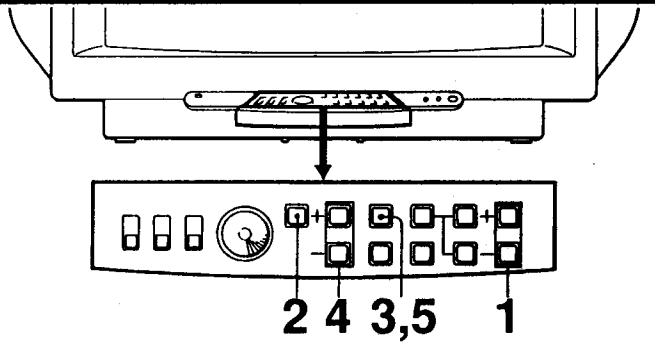
4 **Press AUTO PROGR ②.**



Up to 30 receivable channels are preset in numerical sequence beginning from program number 1. When all receivable channels are preset, the program number 1 lights steadily on the screen and the programming mode is automatically released.

While presetting, the program numbers blink.

Manual Presetting



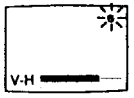
To change the order of a channel which was set earlier, use manual presetting.
Also use manual presetting to set channels with weak signals which were not received by automatic presetting.
Only channels with fairly strong signals can be received by automatic presetting.

1 **Press PROGR +/– to select the desired program position.**

2 **Set the TV system.**

3 **Press PRESET ON/OFF.**

Program number on the screen blinks.
A colored segmented bar appears to indicate approximate location of the channel being tuned in.



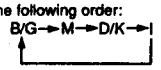
4 **Press MANUAL PROGR (FINE TUNING) repeatedly until the desired channel appears.**
+: to scan higher-frequency channels
–: to scan lower-frequency channels

5 **Press PRESET ON/OFF again.**

Repeat steps 1 through 5 for other desired channels.

Selecting the TV system

Select the proper TV system that can be received in your area.
Each time TV SYSTEM is pressed, the indications appear in the following order:



B/G: West European TV system
M : American TV system
D/K: East European TV system
I : British TV system

Notes

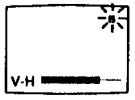
- If more than one TV system can be received in your area, select the main TV system of the area. All receivable channels can be preset in the selected TV system. Resetting of TV system is described in "Watching TV programs".
- Wrong setting of the TV system causes the distorted, or noisy sound, or abnormal color.
- The TV system setting is memorized for each program position. Therefore, the TV system can be reset for only the desired program position without affecting other program positions.

Skipping Unused Program Positions

After presetting channels, unused or undesired program positions can be skipped.

1 Turn the TV on.

2 Press PRESET ON/OFF.
Program number on the screen blinks.
A colored segmented bar appears to indicate approximate location of the channel being tuned in.



3 Press PROGR to select the position to be skipped.

4 Press NORMAL on the commander.

Repeat steps 3 and 4 for other positions to be skipped.

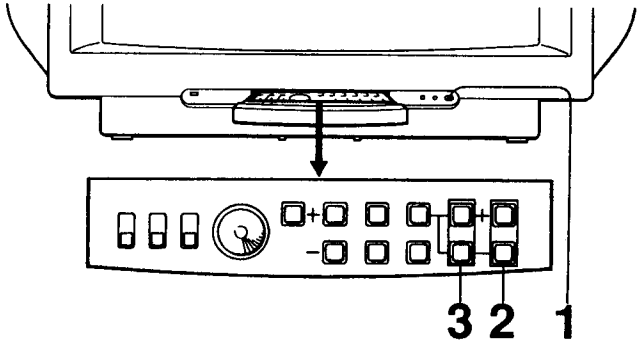
5 Press PRESET ON/OFF.

Restoring the skipped channel

1 Select the position to be restored using the program number button on the commander.

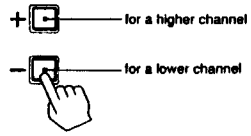
2 Perform steps 2 through 5 in "Manual presetting".

Otherwise, perform automatic presetting and reset all channels.

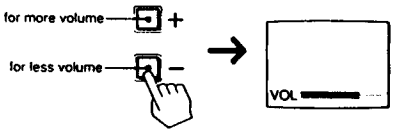


1 Turn the TV on.

2 Select the desired channel.



3 Adjust the volume.



	Commander	TV
To turn off the TV for a short period of time	Press STANDBY.	—
To turn on the TV from the standby mode	Press a program number or PROGR buttons.	Press PROGR + or – button.
To cut off the power completely	—	Press POWER.
To keep the channel display (program number and "VIDEO 1, 2" indication) on the screen	Press DISPLAY.	—
To turn off the program number display	Press DISPLAY.	—
To display the TV system indication	Press DISPLAY.	Press TV SYSTEM.

The STANDBY (response) indicator blinks when the button on the TV or on the commander is pressed. It lights steadily when the TV is turned off with the STANDBY button on the commander.

On-screen display
The following on-screen displays appear:

When the TV is turned on, when a program is changed (despite pressing the DISPLAY button)	Program number
When the TV/VIDEO button is pressed	Program number, VIDEO 1 or VIDEO 2
When the DISPLAY button is pressed	Program number and TV system, VIDEO 1 or VIDEO 2. The TV system display will disappear after a few seconds.

To turn off the on-screen display, press the DISPLAY button.

Picture and sound adjustments

Item to be adjusted	Press buttons on		On-screen display
	Commander	TV	
Sound level	VOL	ANALOG (VOLUME) + −	VOL
Picture contrast	SELECT* → + −	ANALOG SELECT* → ANALOG (VOLUME) + −	PIC
Color intensity	SELECT* → + −	ANALOG SELECT* → ANALOG (VOLUME) + −	COL
Brightness	SELECT* → + −	ANALOG SELECT* → ANALOG (VOLUME) + −	BRI
Hue (NTSC color system only)	SELECT* → + −	ANALOG SELECT* → ANALOG (VOLUME) + −	HUE
Bass	SELECT* → + −	ANALOG SELECT* → ANALOG (VOLUME) + −	T-L
Treble	SELECT* → + −	ANALOG SELECT* → ANALOG (VOLUME) + −	T-H
Balance	SELECT* → + −	ANALOG SELECT* → ANALOG (VOLUME) + to increase sound from the right speaker, or − to increase sound from the left speaker.	BAL
To reset PIC, COL, BRI, HUE, T-L, T-H and BAL to factory-set levels	NORMAL	—	NORMAL
Sharpness	-	Turn SHARPNESS clockwise for a sharper picture, or counterclockwise for a softer picture. The white mark indicates the center position.	—
To mute the sound	MUTE	—	MUTE
To restore the sound	MUTE	—	—
	VOL + −	VOLUME + −	VOL

* **SELECT button on the commander/ANALOG SELECT button on the TV**
Each time SELECT or ANALOG SELECT is pressed, PIC (picture contrast), COL (color intensity), BRI (brightness), HUE, T-L (bass), T-H (treble) or BAL (balance) appears in this order.
Turn on the item to be adjusted and press the + or − button.
Pressing the + or − ANALOG (VOLUME) button on the TV without pressing ANALOG SELECT controls the volume.

Setting TV SYSTEM

If the sound is distorted or noisy, or color is abnormal while receiving program through the 𝕋 terminal, press TV SYSTEM until a clear sound or normal color is obtained. The TV system set by this operation is memorized for the program position.

Note

TV SYSTEM setting has no effect on the signal input through the VIDEO INPUT jacks.

Setting COLOR SYSTEM

Normally set COLOR SYSTEM to AUTO.
In case of getting abnormal color reproduction (for example, if the picture turns red or blue) while receiving weak or inferior quality PAL color system signal, set COLOR SYSTEM to PAL. The picture color will become normal.

Notes on the commander

- For selecting programs, press the corresponding number button.
For program numbers 10 through 19, press "1-", and for program numbers 20 through 29, press "2-" for ten-digit. Then press the required number for the unit while STANDBY (response) indicator and channel display on the screen are blinking (for approx. 5 seconds).
- Be sure that there are no obstructions between the commander and the TV.
- Operable range is limited. The shorter the distance between the commander and the TV, the wider the angle within which the commander can control the TV.

Enjoying Surround and Space Sound Effects

To activate surround effect for stereo sound
Set SURROUND to ON during a stereo sound reproduction. You can obtain sound reproduction with the atmosphere of a movie theater or concert hall. This function is not effective for a monaural sound.

To activate space sound effect for monaural sound
Set SPACE SOUND to ON during a monaural sound reproduction. You can obtain sound reproduction with special acoustic effects.

Note

If both SURROUND and SPACE SOUND are set to ON during a stereo sound reproduction, the surround function has priority over the space sound function.

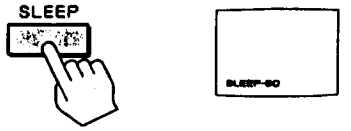
To restore the normal sound, set SURROUND or SPACE SOUND to OFF.

Turning off the TV at the desired time – sleep function

The TV can be automatically turned off after approximately 30, 60, or 90 minutes.
Each time SLEEP on the commander is pressed, the indication on the screen changes as follows:

SLEEP-30 → SLEEP-60 → SLEEP-90 → Sleep off (no indication)

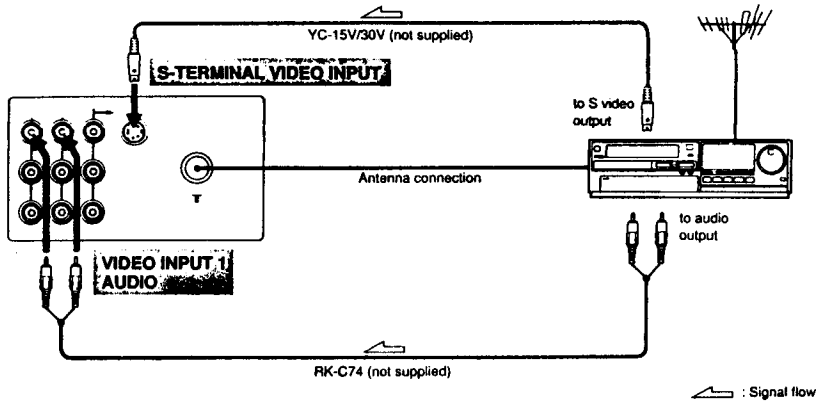
Example: To turn off the TV after 60 minutes
Press SLEEP until SLEEP-60 is displayed on the screen.



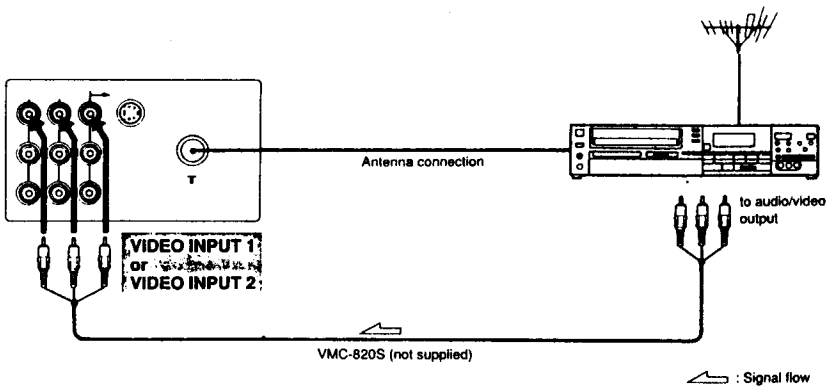
To cancel the sleep function, press SLEEP until no indication is displayed on the screen.

1-6. CONNECTING OTHER EQUIPMENT

Connecting a VTR Equipped with the S Video Output Connector



Connecting a VTR Not Equipped with the S Video Output Connector



Notes on S-TERMINAL VIDEO INPUT

- When S-TERMINAL VIDEO INPUT is connected, the picture from VIDEO INPUT 1 VIDEO is not displayed.
- To view the picture from S-TERMINAL VIDEO INPUT, press the TV/VIDEO button to indicate "VIDEO 1".
  Each time the TV/VIDEO button is pressed, the input source changes in the following sequence.
  TV → VIDEO 1 → VIDEO 2 → TV

- When you connect units to both S-TERMINAL VIDEO INPUT and VIDEO INPUT, S-TERMINAL VIDEO INPUT priors to VIDEO INPUT.
- When you connect a video recorder to S-TERMINAL VIDEO INPUT, you can enjoy the playback of PAL, NTSC3.58 or NTSC4.43.

About S-TERMINAL VIDEO INPUT
Video input and output signals may be separated into Y (luminance or brightness) and C (chroma or color) signals. Usually these two signals are combined in a VTR and sent as one signal to a TV. Separation of the Y and C signals prevents them from interferring with one another, thereby improving picture (especially in color) quality.
This TV is equipped with an S-TERMINAL VIDEO INPUT through which these separated signals can be input directly.

Notes on connections

- Before connecting, make sure to turn off all equipment.
- The plugs should be fully inserted into the jacks. A loose connection may cause hum and noise.
- Keep the VTR away from the TV, if the picture or sound is affected.
- For operation, refer to the instruction manual provided with the VTR.
- The number buttons or PROGR +/– buttons do not function while the video input is displayed.
- If you connect a monaural VTR, connect the audio output of the VTR to the L (MONO) jack of VIDEO INPUT 1 or VIDEO INPUT 2. The monaural sound is heard from both speakers.

With these connections, you will be able to...
- View the playback of the video tapes
- Record TV programs
- Record a TV program while viewing another

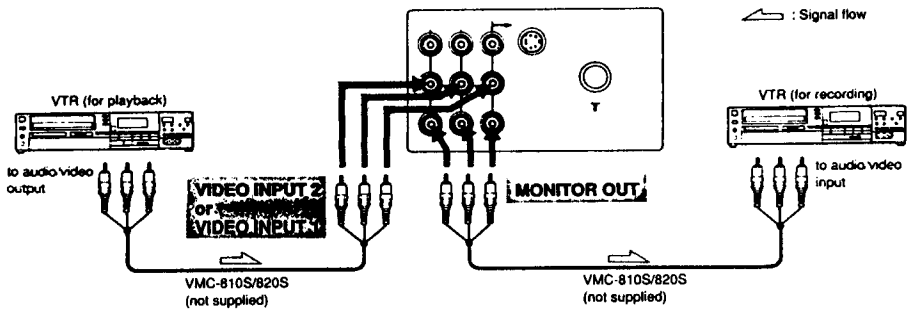
Operation

1 Press TV/VIDEO so that the connected video indication appears on the screen.

2 Set the VTR to the playback mode.

To return to the TV mode
Press TV/VIDEO. A channel or program position number will be displayed on the screen.

Connecting Two VTRs for Tape Editing



Operation

1 Press TV/VIDEO to select the video input for the playback VTR. The selected video indication appears on the screen.

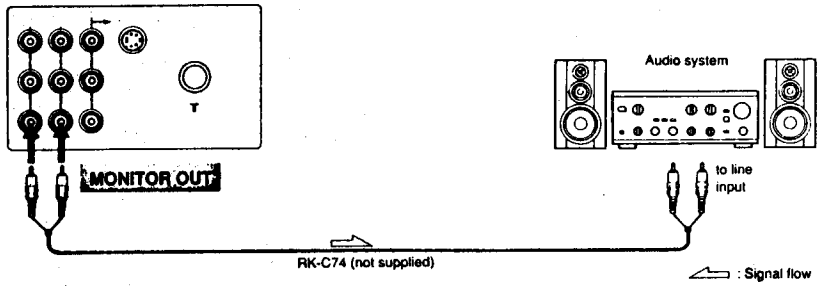
2 Set the playback VTR to the playback mode and the recording VTR to the recording mode.

Note on tape editing

The video signal input from S-TERMINAL VIDEO INPUT is not output from MONITOR OUT. To edit the tape, do not connect the playback VTR to the S-TERMINAL VIDEO INPUT connector.

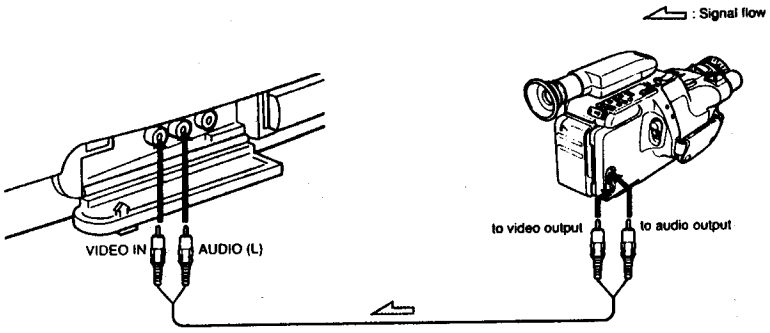
Connecting an Audio System

You can monitor TV or connected VTR sound through an audio system.



Connecting to the front VIDEO INPUT 2 jacks

This TV is equipped with 2 sets of VIDEO INPUT 2 jacks. 2 sets are not available to be used at the same time. When using equipment connected, turn off other equipment not in use. For connection, use a commercially available connecting cord.



Operation

1 Press the TV/VIDEO button on the TV or on the commander.
"VIDEO 2" appears on the screen.

2 Set the connected VTR in playback mode.

To return to the TV mode
Press TV/VIDEO. A program position number will be displayed on the screen.

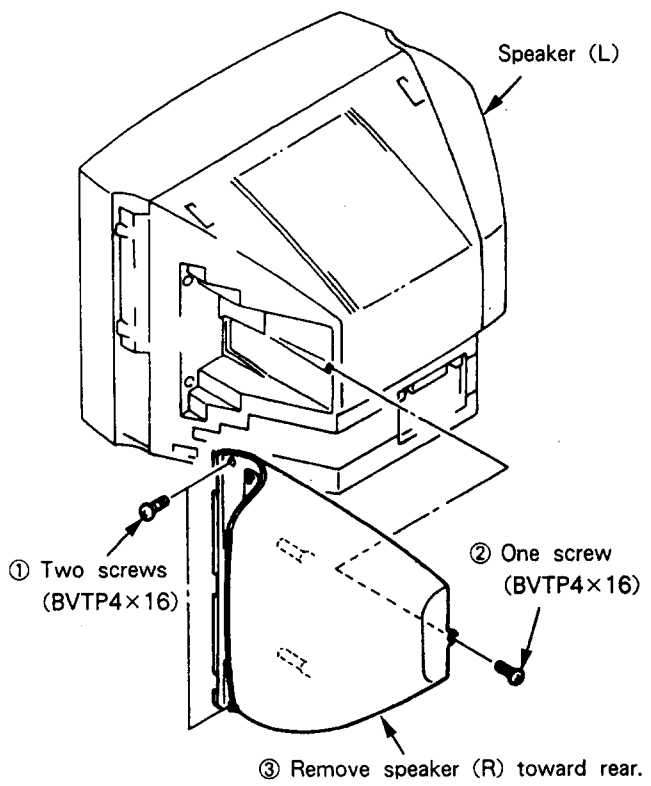
Notes

- If you connect a monaural VTR, connect the audio output of the VTR to the L (MONO) jack of VIDEO INPUT 1 or VIDEO INPUT 2. The monaural sound is heard from both speakers.
- The front and rear VIDEO INPUT 2 jacks cannot be used simultaneously.

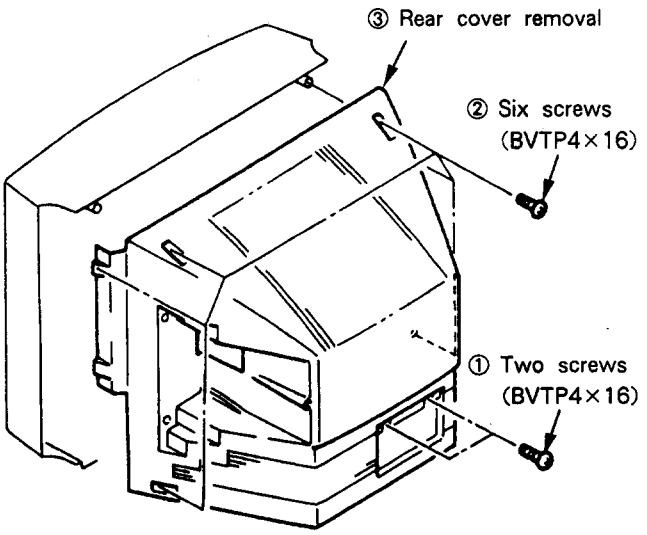
SECTION 2
DISASSEMBLY

2-1. SPEAKER REMOVAL

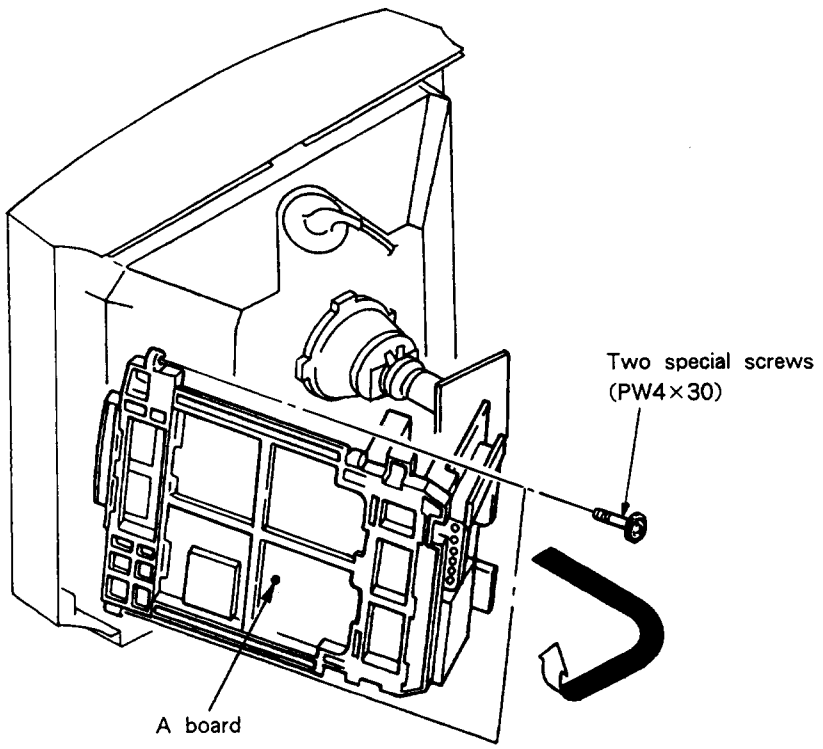
※ Remove speaker (L) as same speaker (R).



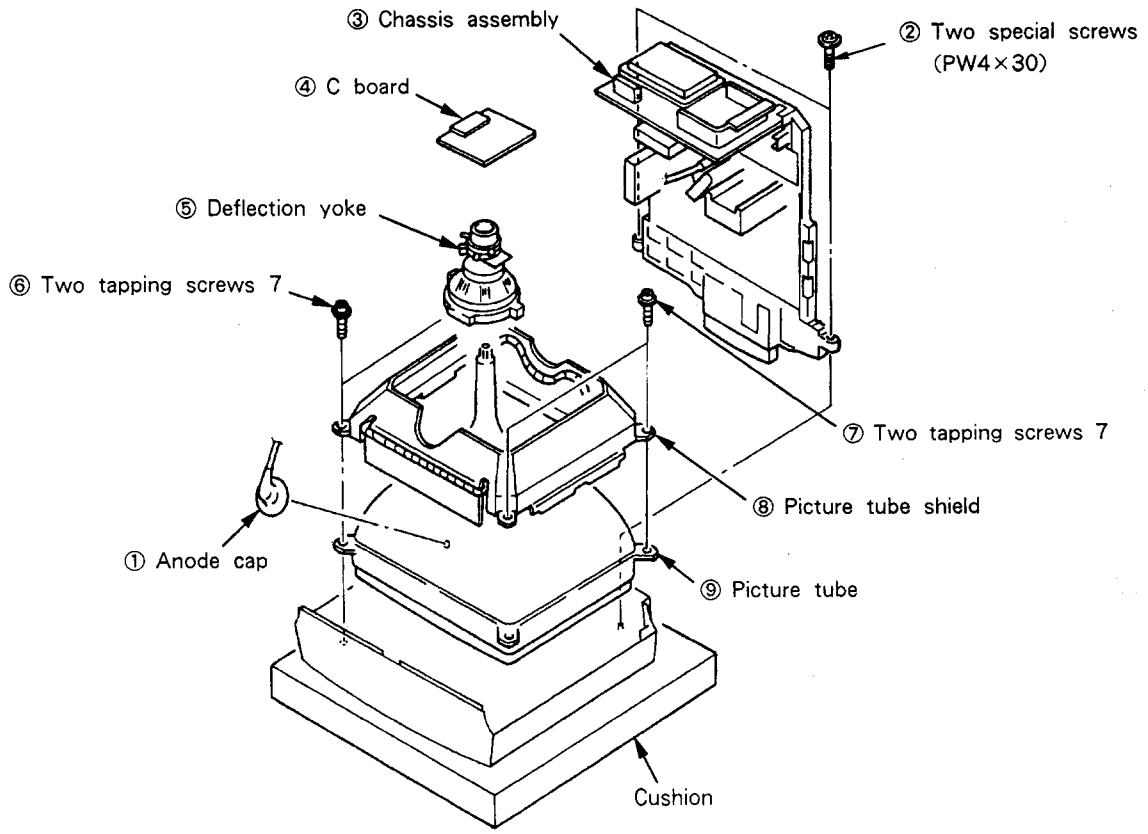
2-2. REAR COVER REMOVAL



2-3. SERVICE POSITION



2-4. PICTURE TUBE REMOVAL

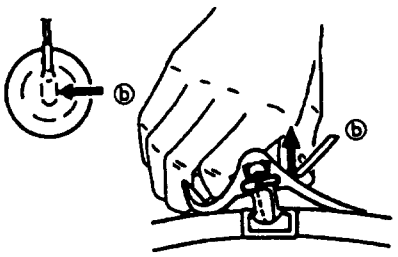


• REMOVAL OF ANODE-CAP

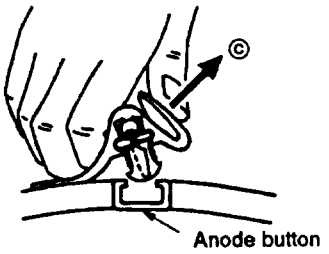
NOTE : Short circuit the anode of the picture tube and the anode cap to the metal chassis, CRT chield or carbon painted on the CRT, after removing the anode.

• REMOVING PROCEDURES

① Turn up one side of the rubber cap in the direction indicated by the arrow ⓐ.



② Using a thumb pull up the rubber cap firmly in the direction indicated by the arrow ⓑ.



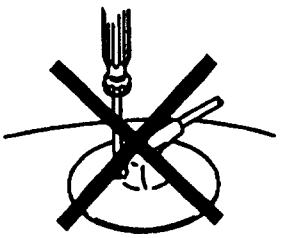
③ When one side of the rubber cap is separated from the anode button, the anode-cap can be removed by turning up the rubber cap and pulling up it in the direction of the arrow ⓒ.

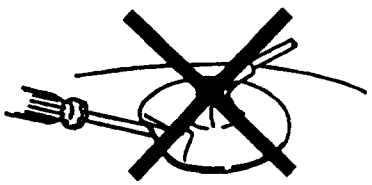
• HOW TO HANDLE AN ANODE-CAP

① Don't hurt the surface of anode-caps with sharp shaped material!

② Don't press the rubber hardly not to hurt inside of anode-caps!
A material fitting called as shatter-hook terminal is built in the rubber.

③ Don't turn the foot of rubber over hardly!
The shatter-hook terminal will stick out or hurt the rubber.





SECTION 3
SET-UP ADJUSTMENTS

● The following adjustments should be made when a complete realignment is required or a new picture tube is installed.

● These adjustments should be performed with rated power supply voltage unless otherwise noted.

The control and switch below should be set as follows unless otherwise noted :

PICTURE control ..... normal
BRIGHTNESS control ..... normal

Perform the adjustments in order as follows:

1. Beam Landing
2. Convergence
3. Focus
4. White Balance

Note: Test Equipment Required.

1. Color-bar Pattern Generator
2. Degausser
3. Digital multimeter

Preparation

● Feed in the white pattern signal.

● Before starting degauss the entire screen.

3-1. BEAM LANDING

1. Input a raster signal with the pattern generator.
2. Loosen the deflection yoke mounting screw, and set the purity control to the center as shown in Fig.2.
3. Turn the raster signal of the pattern generator to green.
4. Move the deflection yoke backward and adjust with the purity control so that green is in the center and red and blue are at the sides evenly. (Fig.3)
5. Move the deflection yoke forward and adjust so that the entire screen becomes green. (Fig.1)
6. Switch over the raster signal to red and blue and confirm the condition.
7. When the position of the deflection yoke is determined, tighten it with the deflection yoke mounting screw.
8. When landing at the corner is not right, adjust by using the disk magnets. (Fig.4)

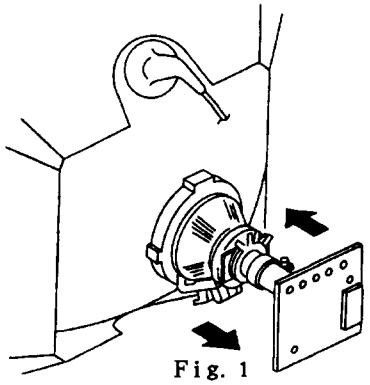


Fig. 1

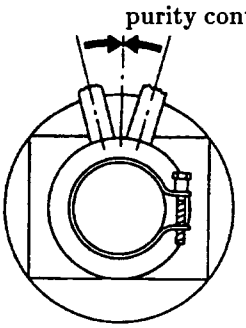


Fig. 2

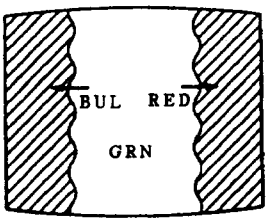


Fig. 3

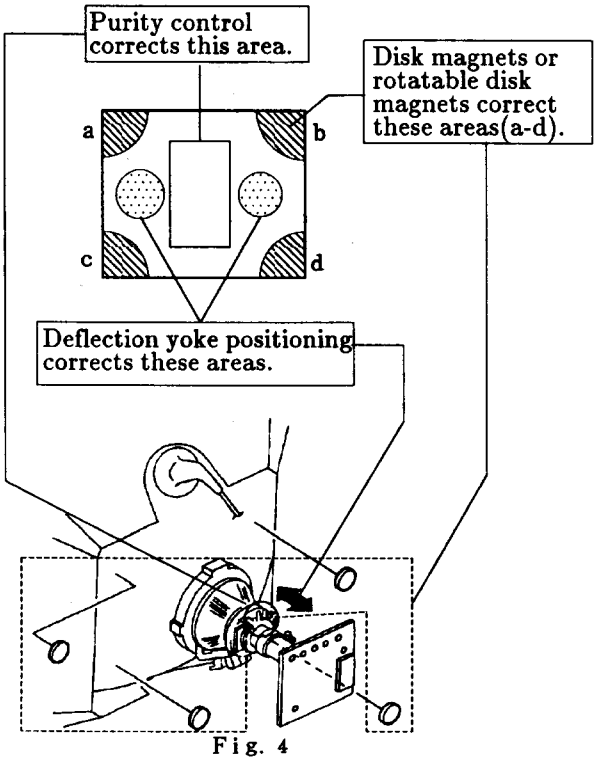


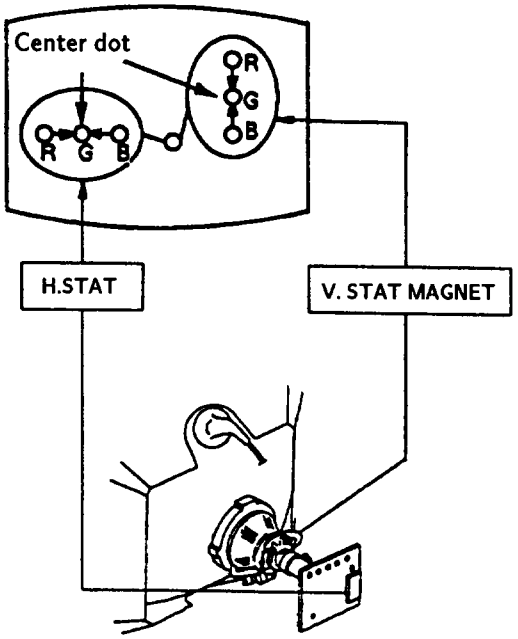
Fig. 4

3-2. CONVERGENCE

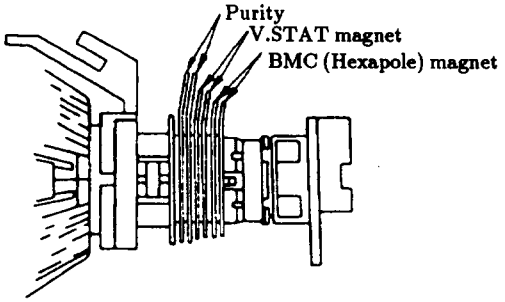
Preparation

- Before starting perform FOCUS, H.SIZE, V.LIN and V.SIZE adjustments.
- Set BRIGHTNESS control to minimum.
- Feed in dot pattern.

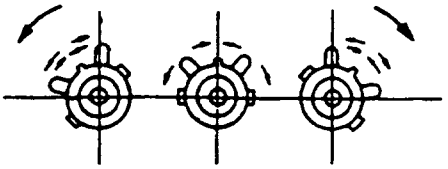
(1) Horizontal and Vertical Static Convergence



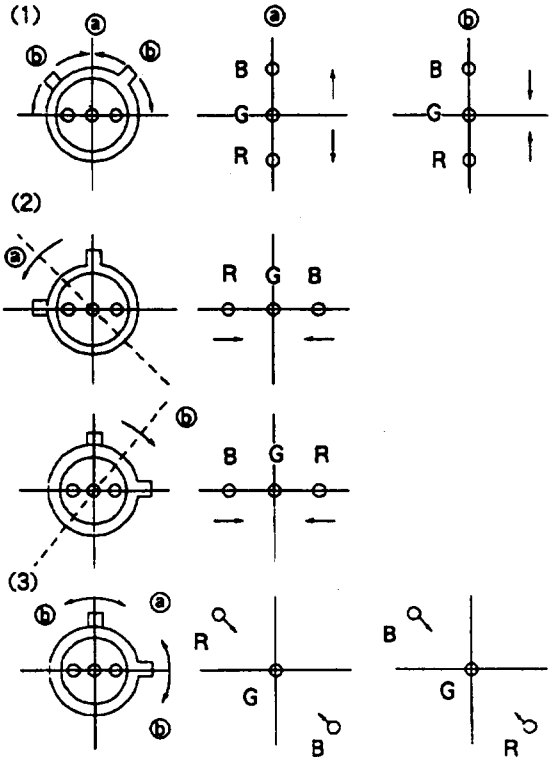
1. Adjust H.STAT VR to converge red , green and blue dots in the center of the screen. (Horizontal movement)
2. Adjust V.STAT magnet to converge red, green and blue dots in the center of the screen. (Vertical movement)
3. If the red, green and blue dots do not coverge in the center of the screen with H.STAT VR, perform horizontal convergence adjustment using H.STAT VR and V.STAT magnet as shown below.(In this case, H.STAT VR and V.STAT magnet effect each other.)



- Tilt the V.STAT magnet and adjust static convergence to open or close the V.STAT magnet.



4. When the V.STAT magnet is moved in the direction of arrow ⓐ and ⓑ ,red, green and blue dots move as shown below.

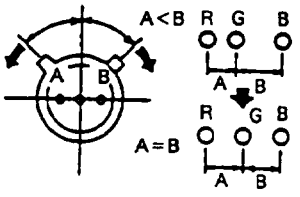


If the blue dot do not Converge with red and green dots, perform following steps.

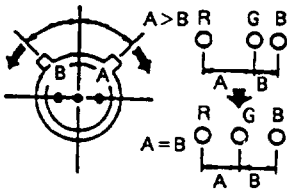
- HMC and VMC correction for BMC (Hexapole) Magnet.

1. HMC (Horizontal Miss Convergence) correction and motion of the Electron Beam with the BMC Magnet.

HMC correction (A)

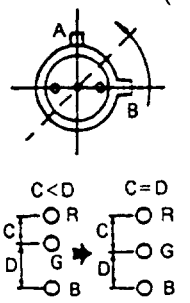


HMC correction (B)

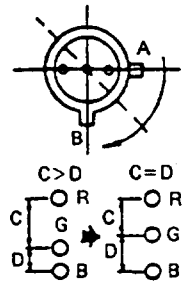


2. VMC (Vertical Miss Convergence) correction and motion of the Electron Beem with the BMC Magnet.

VMC correction (A)



VMC correction (B)

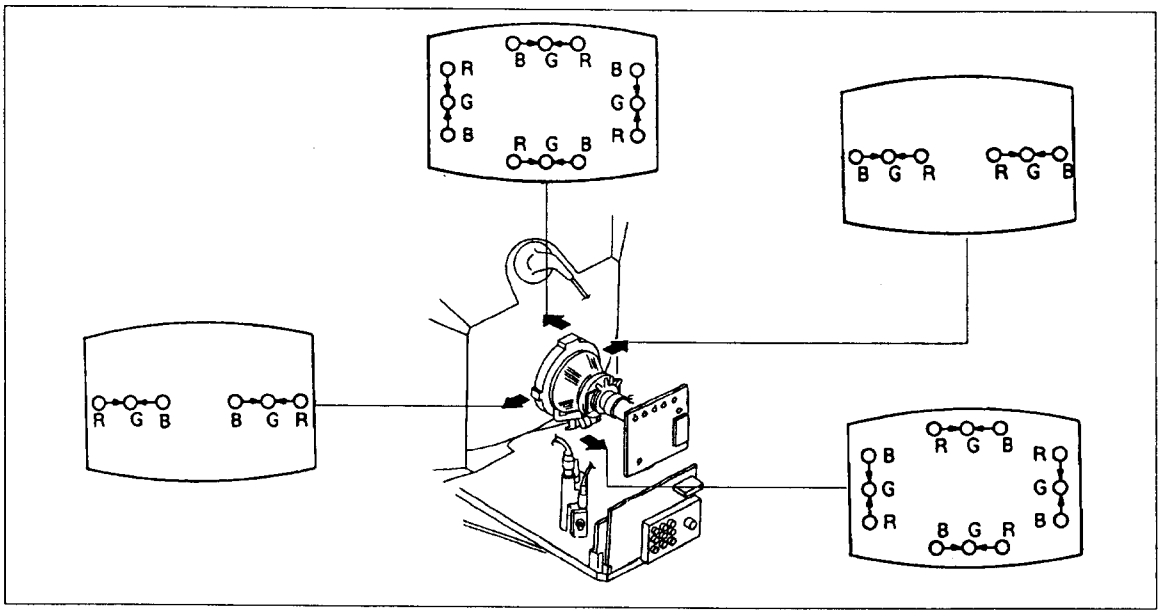


(2) Dynamic Convergence Adjustment

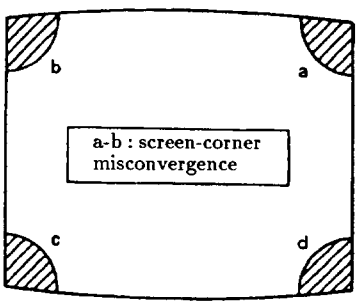
Preparation

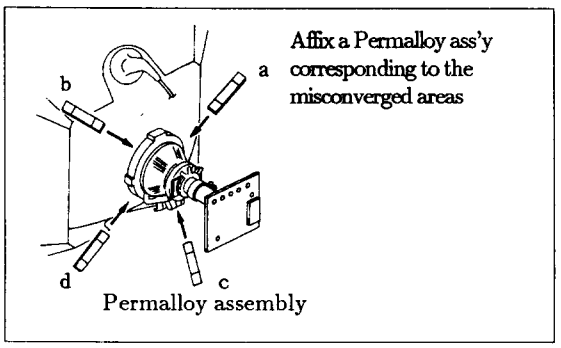
● Before starting perform Horizontal and Vertical static convergence Adjustment.

1. Slightly loosen deflection yoke mounting screw.
2. Remove deflection yoke spacers.
3. Move the deflection yoke for best convergence as shown below.
4. Tighten the deflection yoke mounting screw.
5. Install the deflection yoke spacers.



(3) Screen -corner Convergence





3-3. FOCUS

Adjust FOCUS control for best picture.

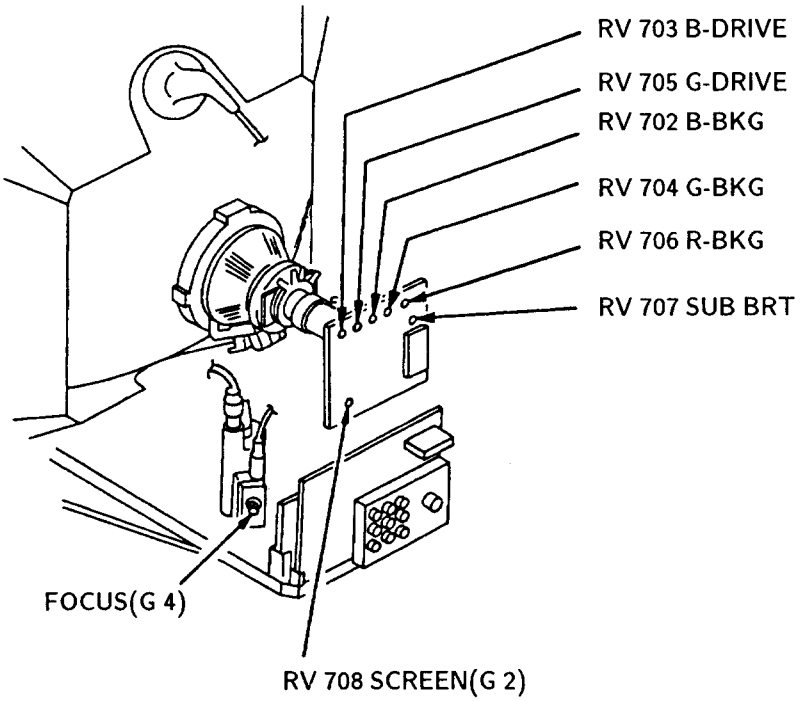
3-4. SCREEN(G 2) and WHITE BALANCE

[SCREEN(G2)]

1. Input dots patteren.
2. Set the PIC control at minimum and set the BRT control at maximum.
3. Confirm the BKG voltage is less than 180 Vdc when turning RV 706 (R.BKG), RV 704 (G.BKG) and RV 702 (B.BKG).
4. Note the color when becomes visible first when turning RV 708 (SCREEN).

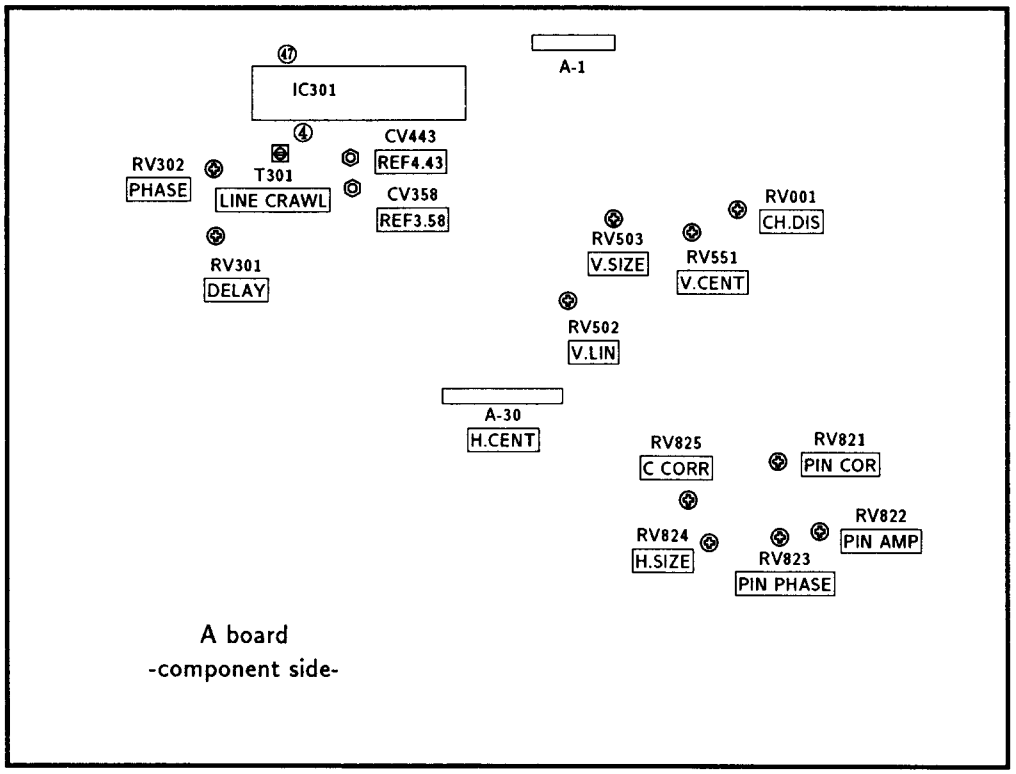
[WHITE BALANCE(Cut off)]

1. Input collor bar signl.
2. Set the PIC control to minimum and set the BRT control at normal.
3. Turn RV 703 (B.DRIVE) and RV 705 (G.DRIVE) fully clockwise.
4. Set RV 706 (R.BKG), RV 704 (G.BKG) and RV 702 (B.BKG) to minimum.
5. Turn RV 707 (SUB BRT) slowly to obtain a faintly visible blue stripe.
6. Switch over all white signal.
7. Adjust BKG controls for best white balance.
8. Set the PICTURE control to maximum. Observe the screen and adjust the DRIVE controls for best white balance.
9. Repeat steps 7 and 8.



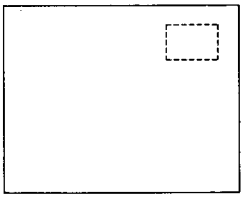
SECTION 4
CIRCUIT ADJUSTMENTS

4-1. A BOARD ADJUSTMENTS



Channel display POSITION ADJUSTMENT (RV001)

1. Set PIC control to maximum.
2. Adjust RV001 so that the channel display should be positioned at up-right on the screen.



A • P • C ADJUSTMENT (CV443) (PAL)

1. Input the PAL color-bar signal.
2. Set the PIC, COL, and BRT controls to normal.
3. Short circuit between pin ④ and pin ⑰ of IC301 with jumper.
4. Adjust CV443 for suitable color intensity.
5. Remove the jumper.

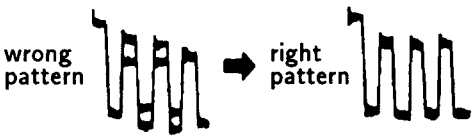
REF OSC 3.58 ADJUSTMENT (CV358) (NTSC 3.58)

1. Short circuit between pin ④ and pin ⑰ of IC301 with a jumper.
2. Set the PIC, COL and BRT controls to normal.
3. Input NTSC 3.58 color-bar signal.
4. Adjust CV358 for suitable color intensity.
5. Remove the jumper.

ANTI PAL, LINE CRAWLING ADJUSTMENT (RV301,RV302) (T301)

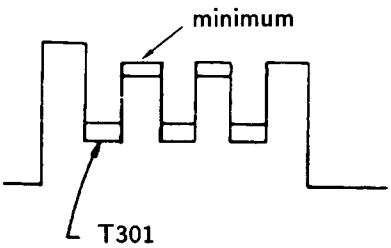
• ANTI PAL ADJUSTMENT

1. Input PAL color-bar signal.
2. Set the PIC, COL and BRT controls to normal.
3. Connect the oscilloscope to pin ③ of A-1 connector.
4. Adjust RV301 (DELAY) and RV302 (PHASE) to obtain the waveform as shown below.

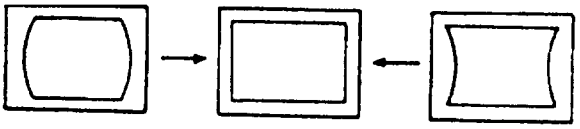


• LINE CRAWLING ADJUSTMENT

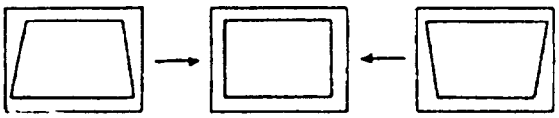
1. Input the PAL color-bar signal.
2. Set the PIC, COL and BRT controls to normal.
3. Connect the oscilloscope to pin ③ of A-1 connector.
4. Adjust T301 for minimum line crawling.



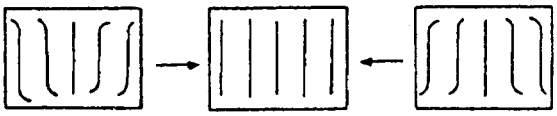
RV822 PIN AMP (PINCUSHION AMPLIFIER)



RV823 PIN PHASE (PINCUSHION PHASE)

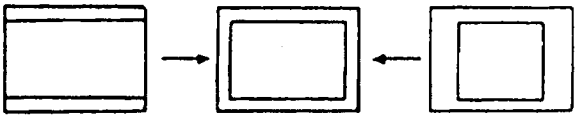


RV821 PIN COR (PINCUSHION CORRECT)

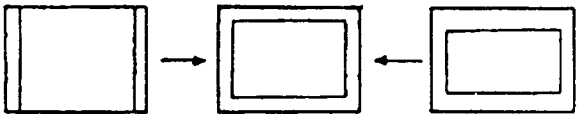


RV825 C.CORR(CORNER CORRECT)

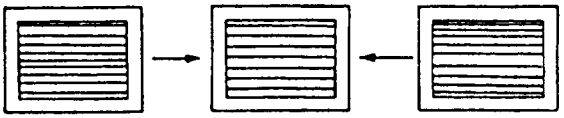
RV824 H.SIZE (HORIZONTAL SIZE)



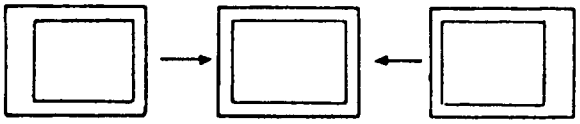
RV503 V.SIZE (VERTICAL SIZE)



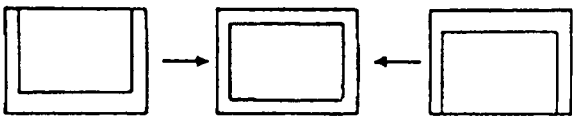
RV502 V.LIN (VERTICAL LINEARITY)



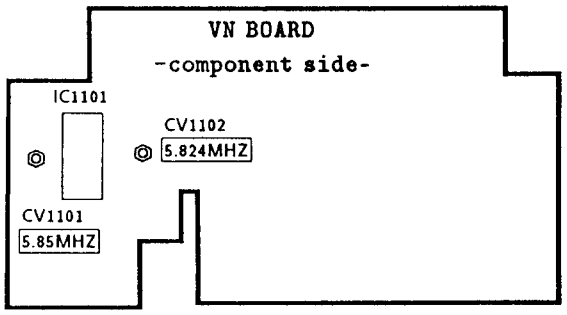
A-30 H.CENT (HORIZONTAL CENTER)



RV551 V.CENT (VERTICAL CENTER)



4-2. VN BOARD ADJUSTMENTS



6.552MHz (CARRIER Freq) Adjustment (CV1101)

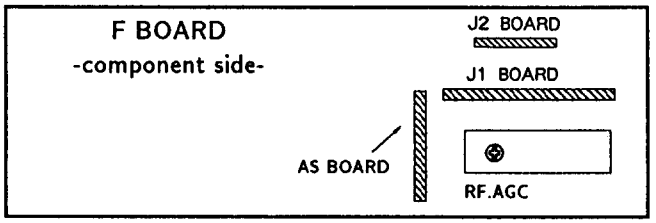
1. Tune in a NICAM signal.
2. Connect the frequency counter to pin ⑧ of IC1101.
3. Adjust CV1101 so that frequency becomes 6.552MHz±30Hz.

- Confirmation
  Connect the X input of an oscilloscope to IC1101 pin ⑲ , and the Y input to pin ⑳ .
  Confirm waveform by X-Y mode.
  Confirm that waveform as OK observed clearly and without tilt.

5.824MHz (Clock Freq) Adjustment (CV1102)

1. Tune in a NICAM signal.
2. Connect the frequency counter to pin ㉖ of IC1101.
3. Adjust CV1102 so that frequency becomes 5.824MHz±30Hz.

4-3. F BOARD ADJUSTMENT



RF AGC ADJUSTMENT (IF1)

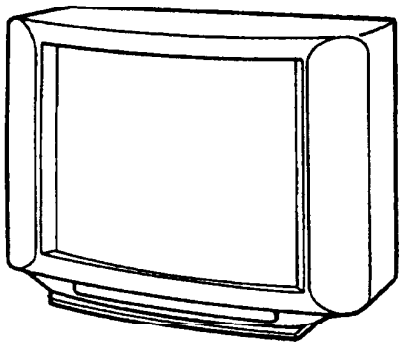
1. Receive a strong off-air signals.
2. Adjust RF AGC VR control so that snow noise and cross-modulation just disappear from the picture.

KV-2965MT
RM-827S

SERVICE MANUAL

Thailand Model

Chassis No. SCC-D29N-A



GP-1A CHASSIS

MODELS OF THE SAME SERIES	
KV-2965MTJ	
KV-2565MT/2565MTJ/2965MT	
KV-2965MTT	

SPECIFICATIONS

Power requirements	110 - 240V AC, 50/60Hz
Power consumption	Indicated on the rear of the TV.
Color system	PAL, PAL60, $NTSC_{3.58}$, $NTSC_{4.43}$, SECAM

Television system and Channel coverage

Television system	M	B/G	I	D/K
Low VHF band	A2-A6	E2-E4	——	R1-R5
High VHF band	A7-A13	E5-E12	——	R6-R12
UHF	A14-A79	E21-E69	B21-B68	R21-R60
CATV	A-8-W+84	S01-S03 S1-S41	——	——

Audio output	6W+6W speaker
Inputs	Antenna 75 ohms VIDEO INPUT jacks : phono jacks Video : 1Vp-p, 75 ohms Audio : 500 m Vrms, high impedance S-TERMINAL VIDEO INPUT jack : 4-pin DIN
Outputs	VIDEO OUT jacks:phono jacks Video : 1Vp-p, 75 ohms Audio : 500 m Vrms, low impedance
Picture tube	72.4 cm (29 inches)
Dimensions	782 × 577 × 515 mm (w/h/d)
Weight	44.5 kg

Design and specifications are subject to change without notice.

MICROFILM

TRINITRON® COLOR TV

SONY®

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CAUTION

SHORT CIRCUIT THE ANODE OF THE PICTURE TUBE AND THE ANODE CAP TO THE METAL CHASSIS, CRT SHIELD, OR CARBON PAINTED ON THE CRT, AFTER REMOVING THE ANODE.

SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY SHADING AND MARK ⚠ ON THE SCHEMATIC DIAGRAMS, EXPLODED VIEWS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

SECTION 1

GENERAL

The operating instructions mentioned here are partial abstracts from the Operating Instruction Manual. The page numbers of the Operating Instruction Manual remein as in the manual.

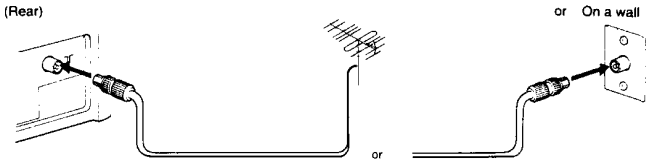
Operating Instructions

Before operating the TV, please read this manual thoroughly and retain it for future reference.

1-1. ANTENNA CONNECTION

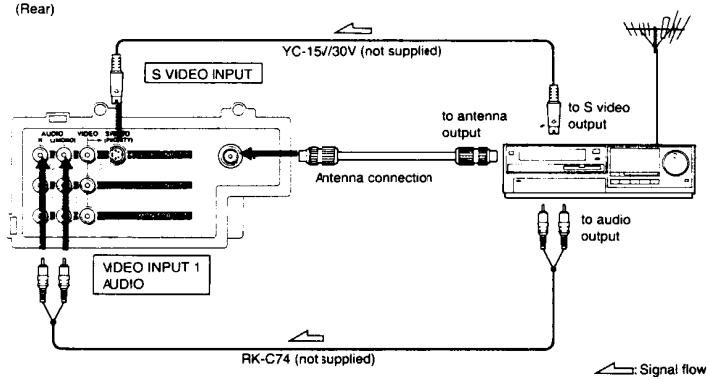
To connect a VHF antenna or a combination VHF/UHF antenna – 75-ohm coaxial cable (round)

Plug the connector into the 'IT' socket of the TV.

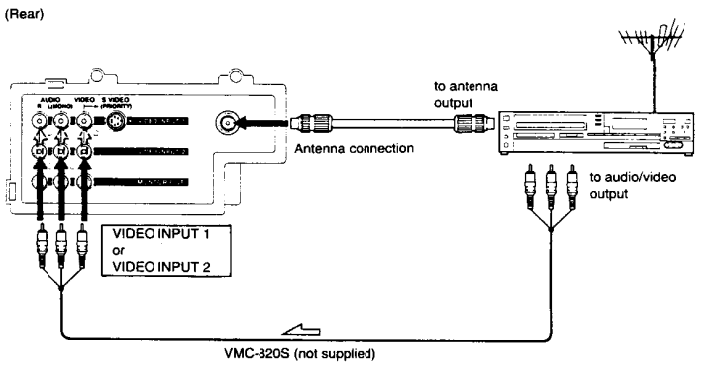


1-2. CONNECTING A VTR OR OTHER EQUIPMENT

Connecting a VTR Equipped with the S Video Output Connector

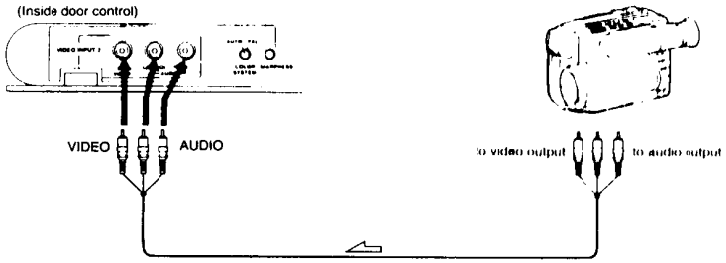


Connecting a VTR or Other Equipment not Equipped with an S video Output Jack



Connecting a VTR or Camcorder to the VIDEO INPUT Jacks on the Front

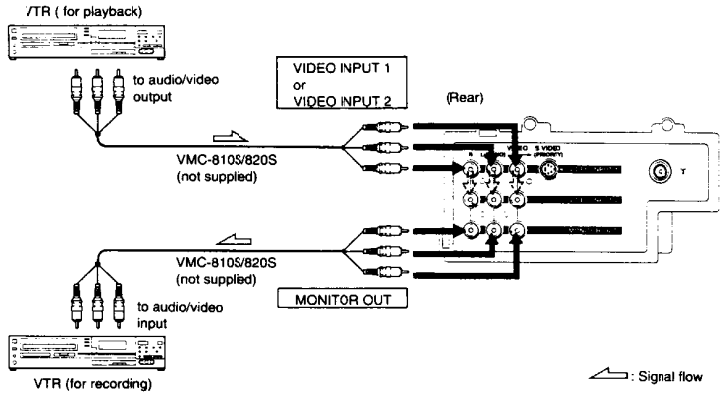
This TV is equipped with 2 sets of VIDEO INPUT 2 jacks. 2 sets are not available to be used at the same time. When using equipment connected, turn off other equipment not in use. For connection, use a commercially availabe connecting cord.



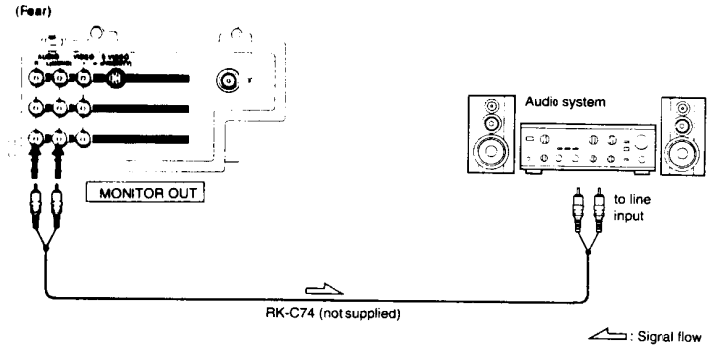
Note

If you connect monaural equpment, connect the audio output of the VTR to L (MONO) jack of VIDEO INPUT 2. The monaural sound will be heard from both speakers.

Connecting two VTRs for Tape Editing



Connecting an Audio System



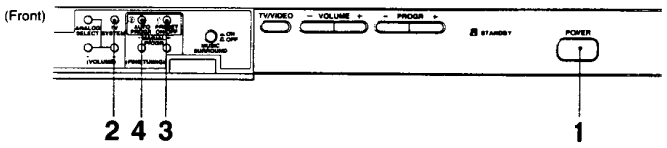
Note

If you connect monaural equipment, connec the equipment to the L (MONO) jack.
The monaural sound will be heard from both speakers.

1-3. PRESETTING TV CHANNELS

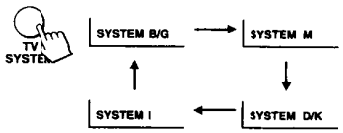
Presetting TV channels automatically

You can preset up to 30 channels automatcally to the program position numbers (0 to 29) in numerical sequence from channel number 1.



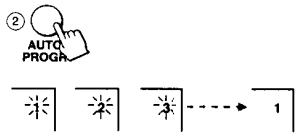
1 Press the POWER button.

2 Press theTV SYSTEM button to select your local TV system.



3 Press the PRESET ON/OFF button ①.

4 Press the AUTO PROGR button ②.



Manual Presetting

To change the program number for a channel, or to receive a channel of weak signal, preset the channel manually.
Example: To preset a channel in program number 8

1 Press the PRESET ON/OFF button.

2 Press the PROGR +/– buttons until "8" appears.

3 Press the TV SYSTEM button to select your TV system.

4 Press the MANUAL PROGR +/– buttons until the channel you want appears.

5 Press the PRESET ON/OFF button.

To preset other channels
Repeat steps 1 through 5.

Skipping Program Positions

You can skip the unused or undesired program position when you are selecting a program using the PROGR +/– buttons.
Example: To skip the program position 8

1 Press the PROGR +/– buttons until "8" appears.

2 Press the PRESET ON/OFF button.

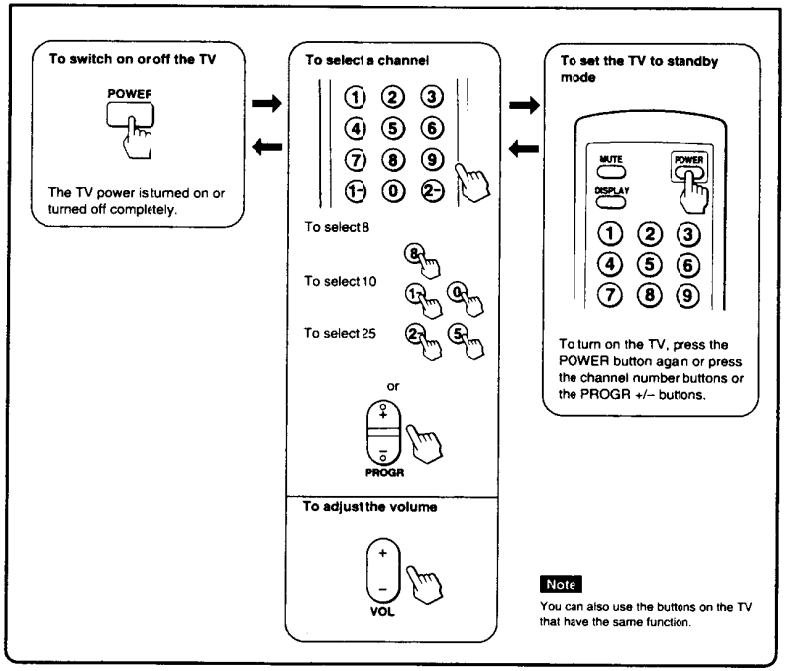
3 Press the PIC MODE button on the Remote Commander.

4 Press the PRESET ON/OFF button.

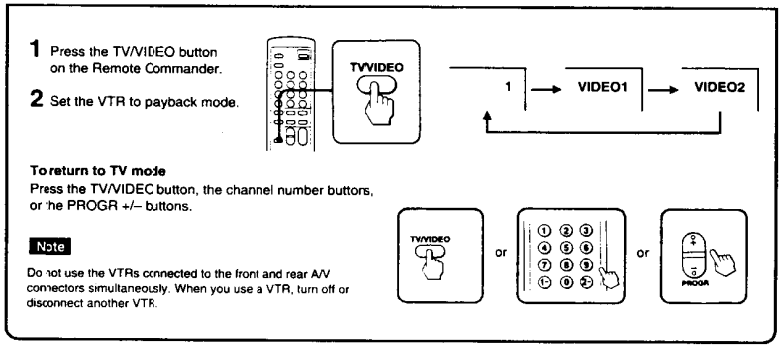
To skip other channels
Repeat steps 1 through 3.

To cancel the skip setting
Preset the station manually as described in "Manual Presetting", or preset automatically again.

1-4. WATCHING THE TV


To switch on oroff the TV
POWEF
The TV power isturned on or turned off completely.
To selecl a channel
To select8
To select10
To select25
or
PROGR
To adjust the volume
VOL
To set the TV to standby mode
MUTE
POWER
DISPLAY
To turn on the TV, press the POWER button agan or press the channel number buttons or the PROGR +/– buttons.
Note
You can also use the buttons on the TV that have the same function.

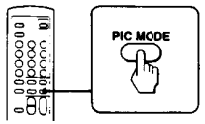
1-5. WATCHING THE VIDEO INPUT


1 Press the TV/VIDEO button on the Remote Commander.
2 Set the VTR to payback mode.
TV/VIDEO
1
VIDEO1
VIDEO2
To return to TV mode
Press the TV/VIDEC button, the channel number buttons, or he PROGR +/– buttons.
Note
Do not use the VTRs connected to the front and rear A/V connectors simultaneously. When you use a VTR, turn off or disconnect another VTR.
or
or
PROGR

1-6. ADJUSTING THE PICTURE AND SOUND

Selecting the Picture Mode

Press the PIC MODE buttor.



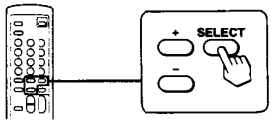
High contrast picture

Soft picture (good for video games)

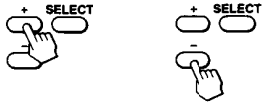
DYNAMIC → MIDDLE → SOFT

Adjusting the Picture and Sound Quality

1 Selec the adjustment item using the SELECT button on the Remote Commander (or ANALOG SELECT buttor on the TV).



2 Adjust using the + and – buttons.



Contrast and color intensity → Color → Brightness → Hue (Operative NTSC signal only)

PIC ····· → COL ····· → BRI ····· → HUE

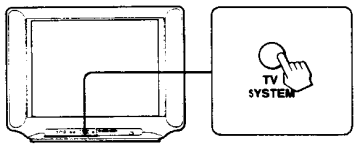
Balance ← Treble ← Bass

BAL ← T-H ← T-L

Note

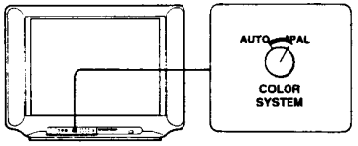
If you change the PIC MODE setting after making the above adjustments, the adjustment changes according to the PIC MODE setting, and COL (color), BRI (brightness) and HUE return to their original factory settings.

To set TV SYSTEM



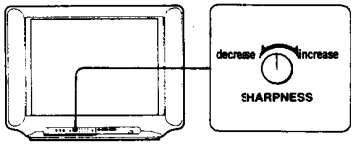
If the sound is distorted or noisy, or color is abnormal while receiving a program through the VHF/UHF terminal, press TV SYSTEM until clear sound or normal color is obtained. The TV system set by his operation is memorized for the program position.

To set COLOR SYSTEM



Normally, set COLOR SYSTEM to AUTO.
If the color reproduction is not normal (for example, the picture turns red or blue) while receiving PAL and PAL 60 playback signal, set to PAL. The picture color will become normal.

Adjusting SHARPNESS

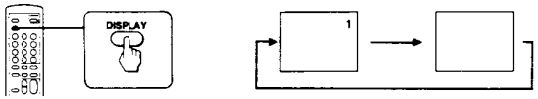


Turn SHARPNESS clockwise to increase sharpness and counterclockwise to decrease sharpness.

1-7. USING CONVENIENT FEATURES

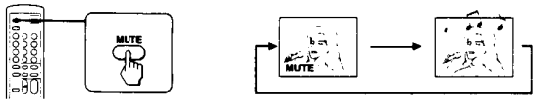
Tuning On or Off the On-screen Display

Press the DISPLAY button.



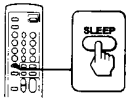
Muting

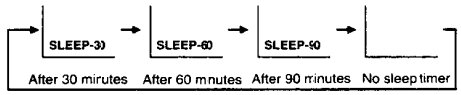
Press the MUTE button.



Setting the Sleep Timer

The TV will be turned off after about 30, 60, or 90 minutes.
Press the SLEEP button.





To cancel the sleep timer
Press the SLEEP button until the sleep display disappears.

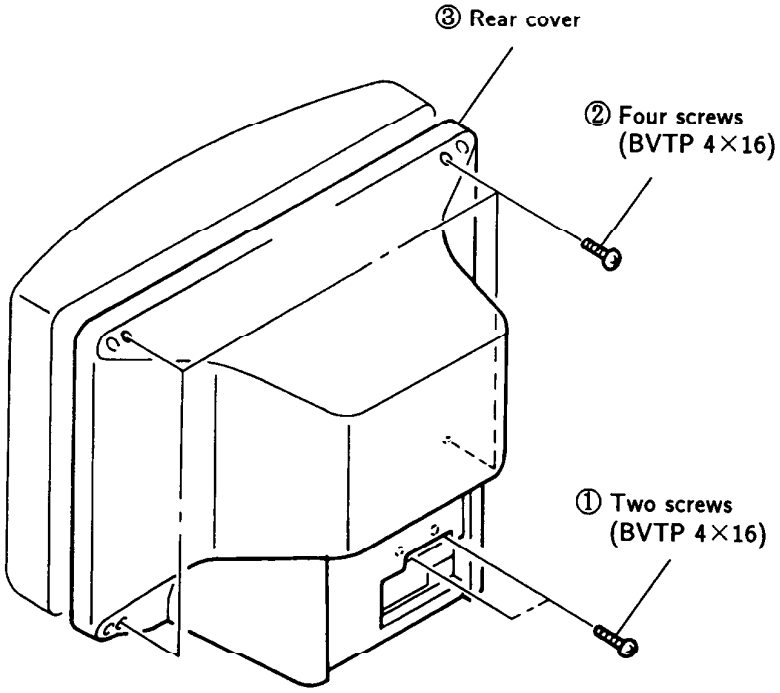
Setting a MUSIC SURROUND Mode

Set MUSIC SURROUND to □ ON during a stereo sound reproduction.
You receive a theatrical audio effect or live concert effect sound.
This function does not work for monaural sound.

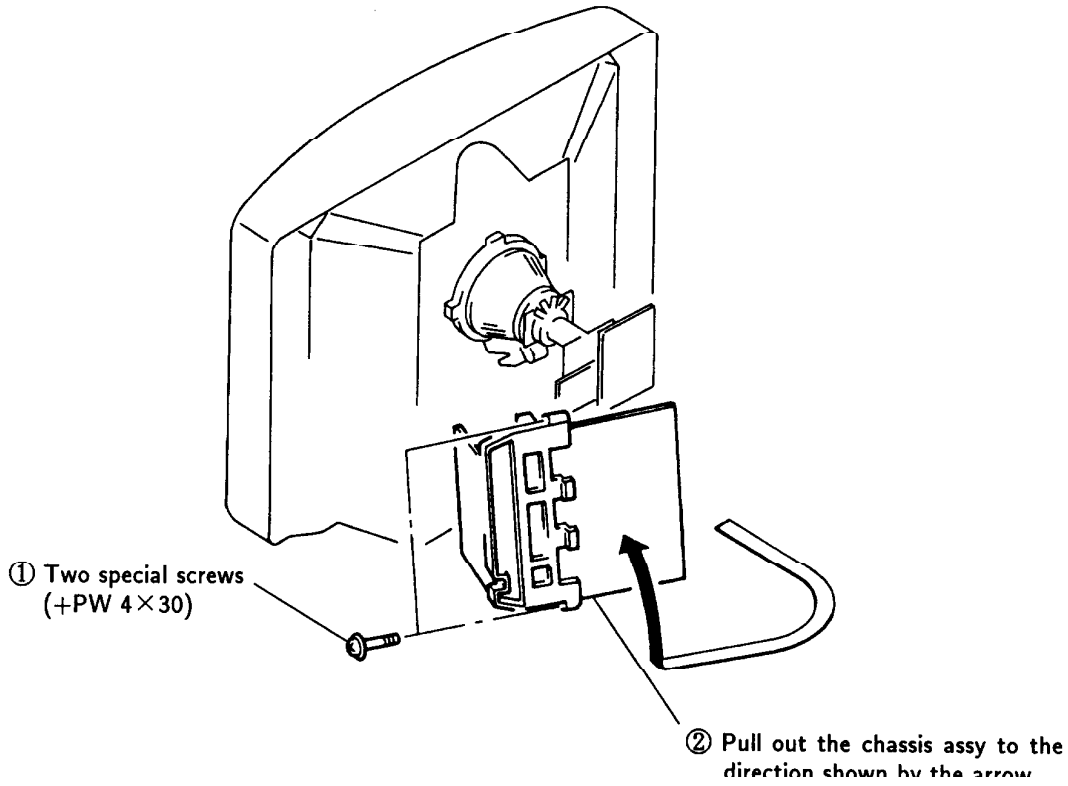
SECTION 2

DISASSEMBLY

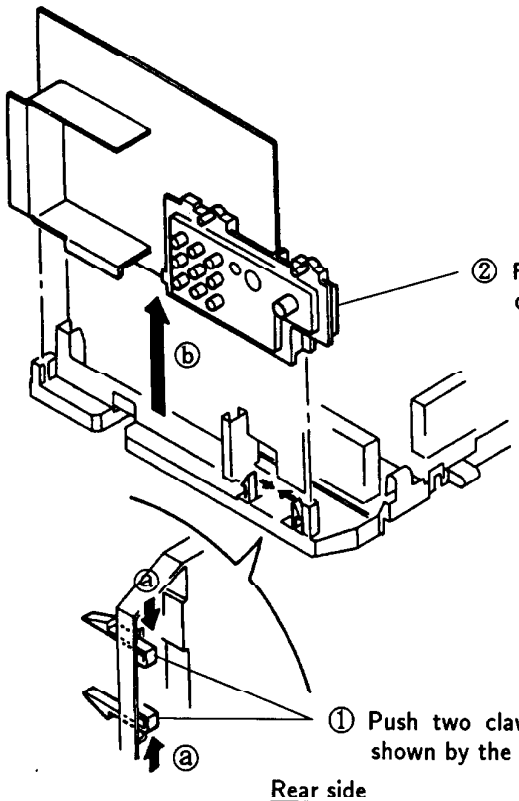
2-1. REAR COVER REMOVAL



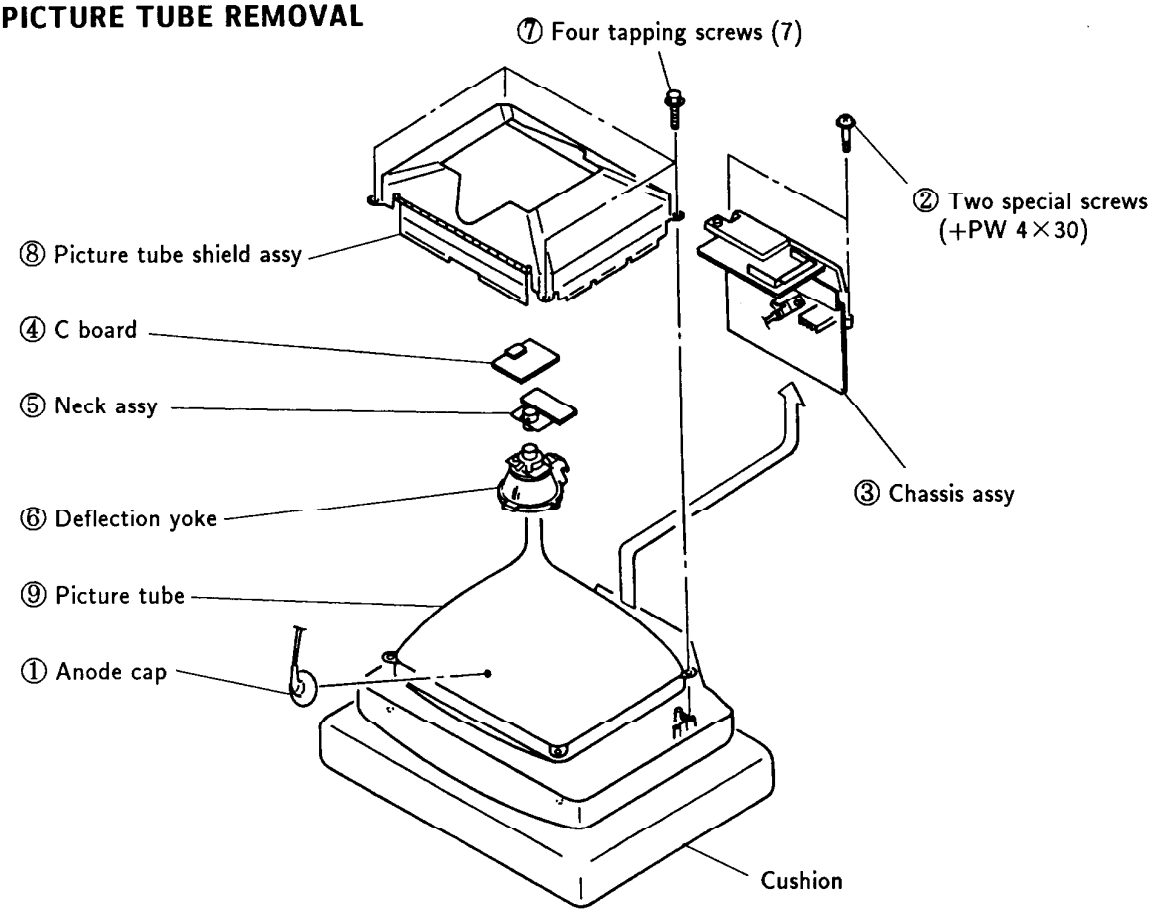
2-2. SERVICE POSITION



2-3. K BOARD REMOVAL


② Remove K board complete to the direction shown by the arrow ⓑ .
ⓑ
ⓐ
① Push two claws to the direction shown by the arrow ⓐ .
ⓐ
Rear side

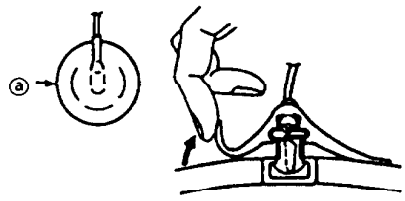
2-4. PICTURE TUBE REMOVAL



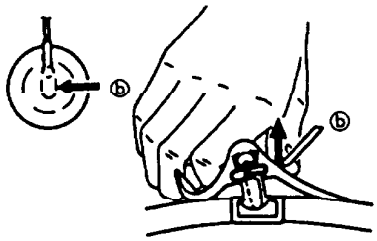
· REMOVAL OF ANODE-CAP

NOTE : Short circuit the anode of the picture tube and the anode cap to the metal chassis, CRT chield or carbon painted on the CRT, after removing the anode.

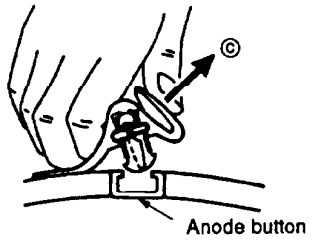
· REMOVING PROCEDURES



① Turn up one side of the rubber cap in the direction indicated by the arrow ⓐ.



② Using a thumb pull up the rubber cap firmly in the direction indicated by the arrow ⓑ.



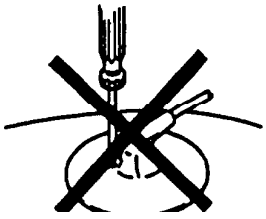
③ When one side of the rubber cap is separated from the anode button, the anode-cap can be removed by turning up the rubber cap and pulling up it in the direction of the arrow ⓒ.

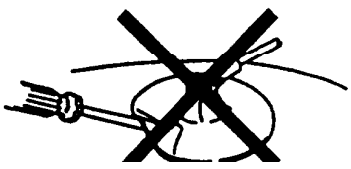
· HOW TO HANDLE AN ANODE-CAP

① Don't hurt the surface of anode-caps with sharp shaped material!

② Don't press the rubber hardly not to hurt inside of anode-caps!
A material fitting called as shatter-hook terminal is built in the rubber.

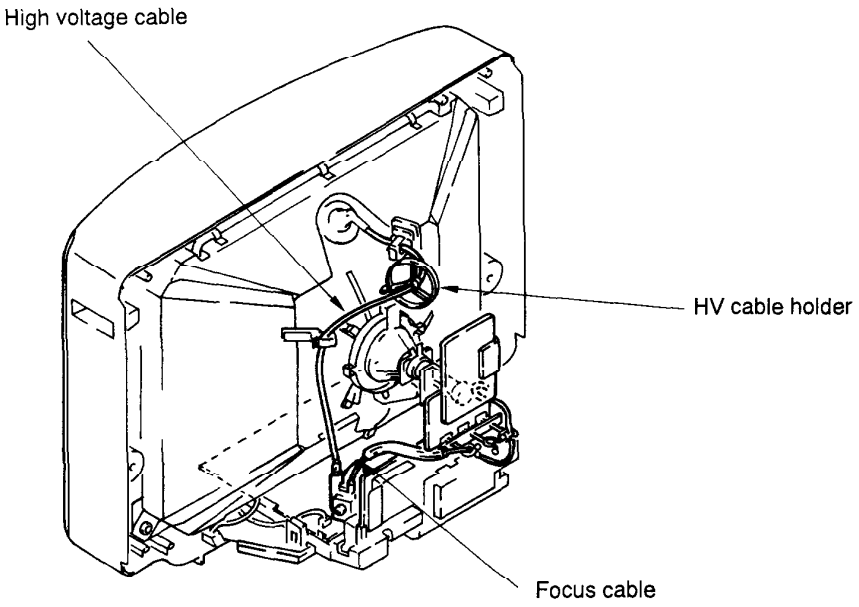
③ Don't turn the foot of rubber over hardly!
The shatter-hook terminal will stick out or





2-5. HIGH VOLTAGE CABLE, FOCUS CABLE WIRING ARRANGEMENT

After repairing, arrange the high voltage cable and the focus cable as shown in the figure below.



SECTION 3
SET-UP ADJUSTMENTS

- The following adjustments should be made when a complete realignment is required or a new picture tube is installed.
- These adjustments should be performed with rated power supply voltage unless otherwise noted.

The control and switch below should be set as follows unless otherwise noted :

PICTURE control ..... normal
BRIGHTNESS control ..... normal

Perform the adjustments in order as follows:

1. Beam Landing
2. Convergence
3. Focus
4. White Balance

Note: Test Equipment Required.

1. Color-bar Pattern Generator
2. Degausser
3. Digital multimeter

Preparations :

- Feed in the white pattern signal.
- Before starting degauss the entire screen.

3-1. BEAM LANDING

1. Input the white signal with the pattern generator.
   Contrast, Bightness } normal
2. Position neck ass'y as shown in Fig 3-2.
3. Set the pattern generator raster signal to red.
4. Move the deflection yoke to the rear and adjust with the purity control so that the red is at the center and the blue and the green take up equally sized areas on each side.
   (See Fig. 3-1 through 3-3.)
5. Move the deflection yoke forward and adjust so that entire screen is red. (See Fig. 3-1.)
6. Switch the raster signal to blue, then to green and verify the condition.
7. When the position of the deflection yoke has been decided, fasten the deflection yoke with the screws.
8. If the beam does not land correctly in all the corners, use a magnet to adjust it.
   (See Fig. 3-4.)

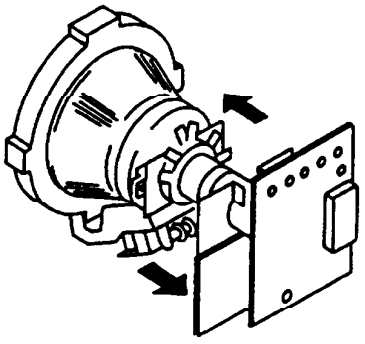


Fig. 3-1

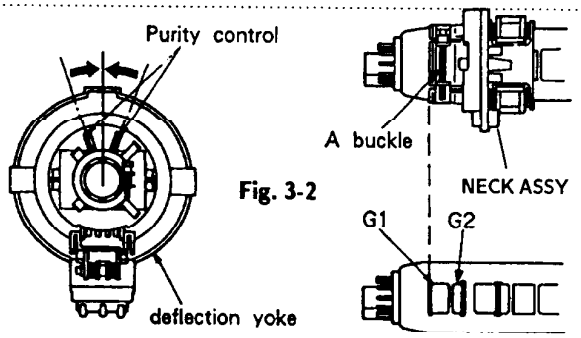


Fig. 3-2

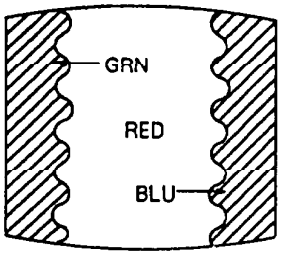
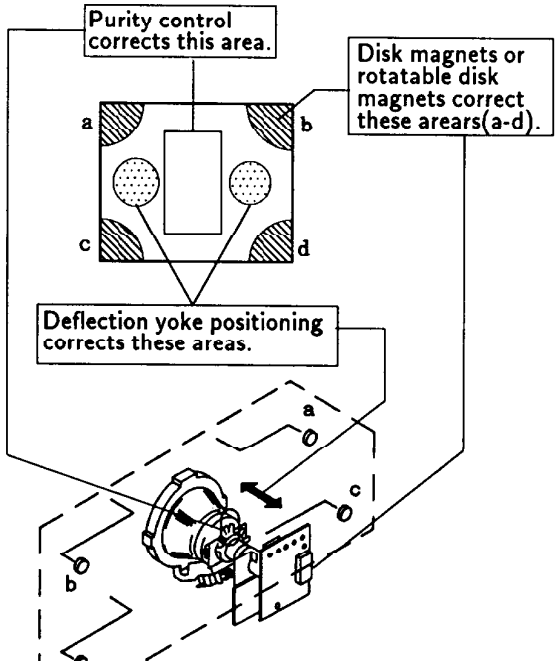


Fig. 3-3

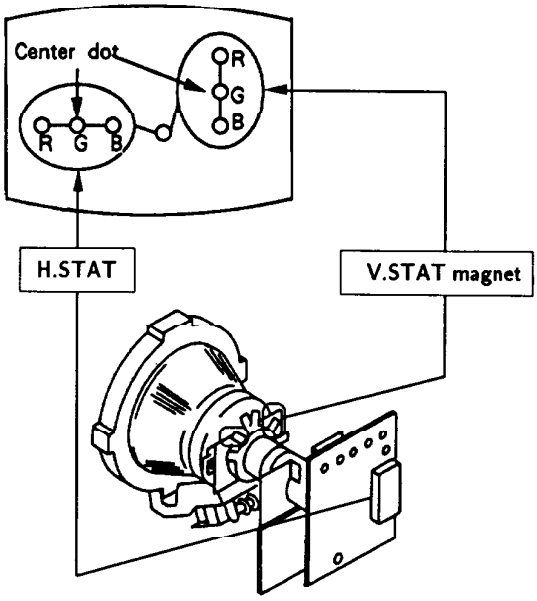


3-2. CONVERGENCE

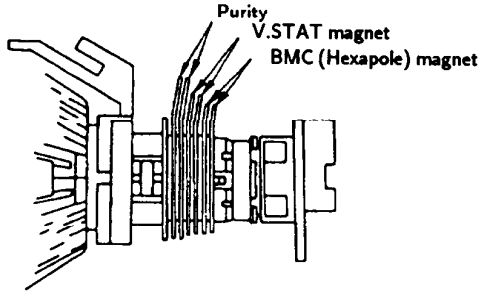
Preparations :

- Before starting perform FOCUS, H.SIZE, V.LIN and V.SIZE adjustments.
- Set BRIGHTNESS control to minimum.
- Feed in dot pattern.

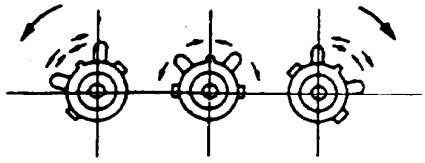
(1) Horizontal and Vertical Static Convergence



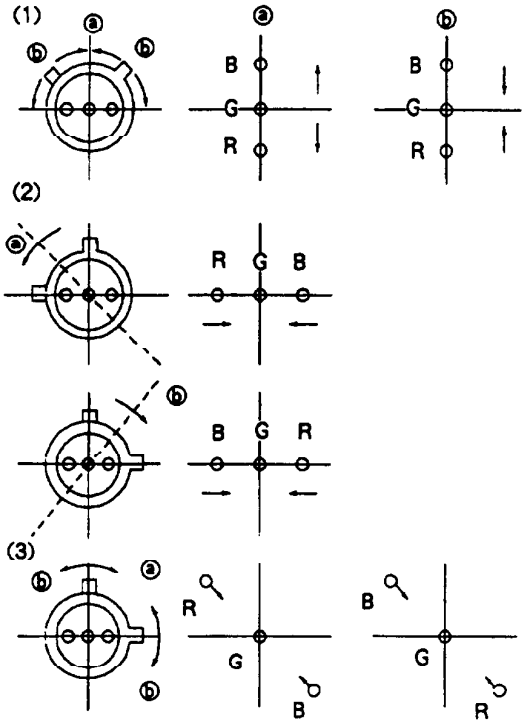
1. Adjust H.STAT VR to converge red , green and blue dots in the center of the screen. (Horizontal movement)
2. Adjust V.STAT magnet to converge red, green and blue dots in the center of the screen. (Vertical movement)
3. If the red, green and blue dots do not coverge in the center of the screen with H.STAT VR, perform horizontal convergence adjustment using H.STAT VR and V.STAT magnet as shown below.(In this case, H.STAT VR and V.STAT magnet effect each other.)



- Tilt the V.STAT magnet and adjust static convergence to open or close the V.STAT magnet.



4. When the V.STAT magnet is moved in the direction of arrow ⓐ and ⓑ ,red, green and blue dots move as shown below.

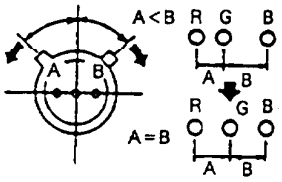


If the blue dot do not Converge with red and green dots, perform following steps.

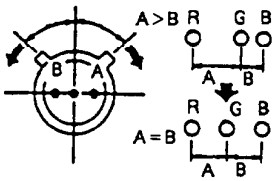
- HMC and VMC correction for BMC (Hexapole) Magnet.

1. HMC (Horizontal Miss Convergence) correction and motion of the Electron Beam with the BMC Magnet.

HMC correction (A)

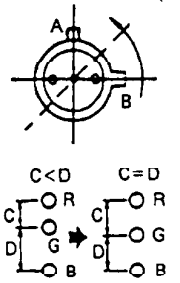


HMC correction (B)

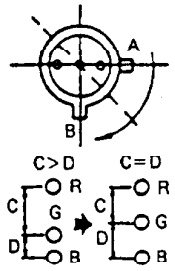


2. VMC (Vertical Miss Convergence) correction and motion of the Electron Beem with the BMC Magnet.

VMC correction (A)



VMC correction (B)

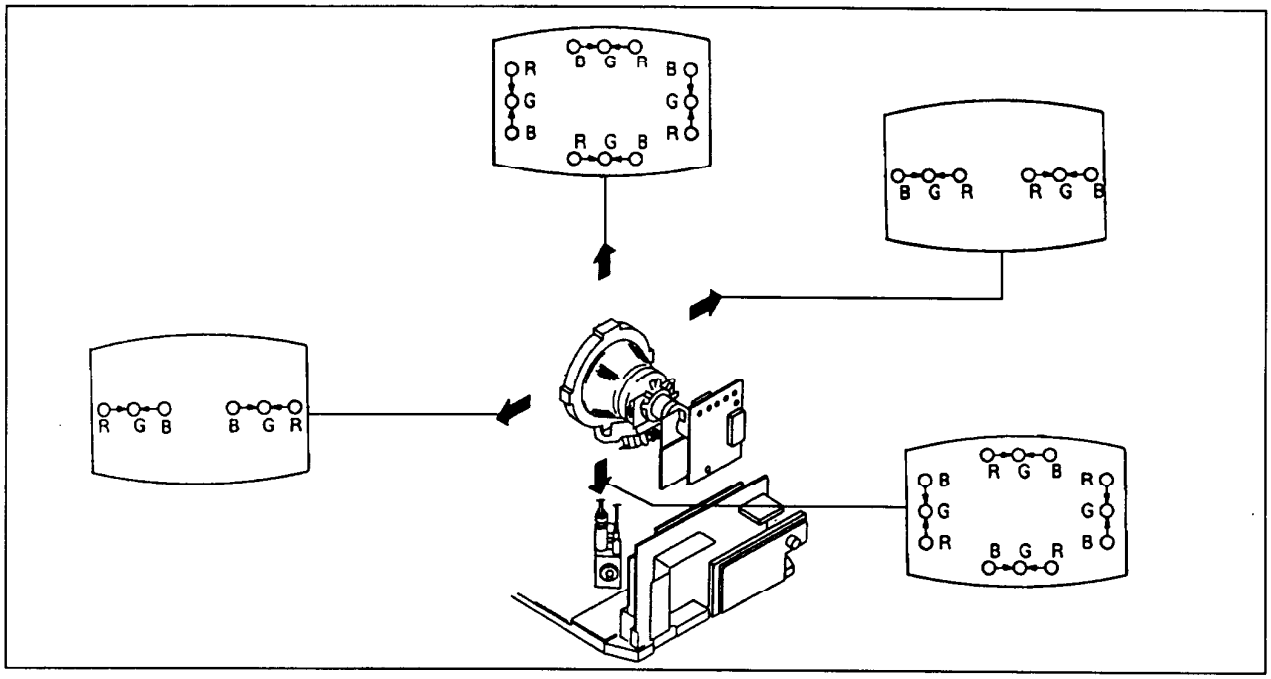


(2) Dynamic Convergence Adjustment

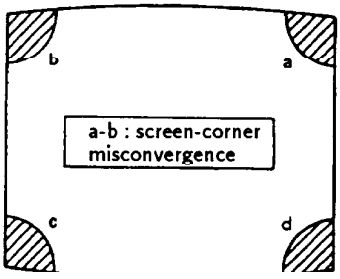
Preparations :

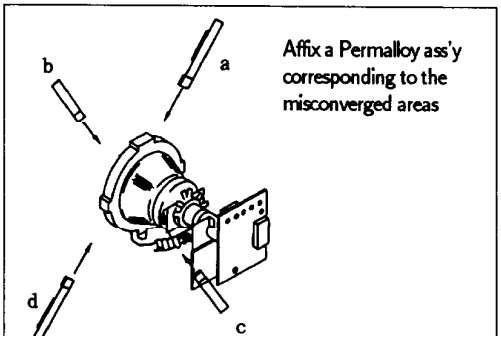
● Before starting perform Horizontal and Vertical static convergence Adjustmet.

1. Slightly loosen deflection yoke screw.
2. Remove deflection yoke spacers.
3. Move the deflection yoke for best convergence as shown below.
4. Tighten the deflection yoke screw.
5. Install the deflection yoke spacers.



(3) Screen -corner Convergence





3-3. FOCUS

Adjust FOCUS control for best picture.

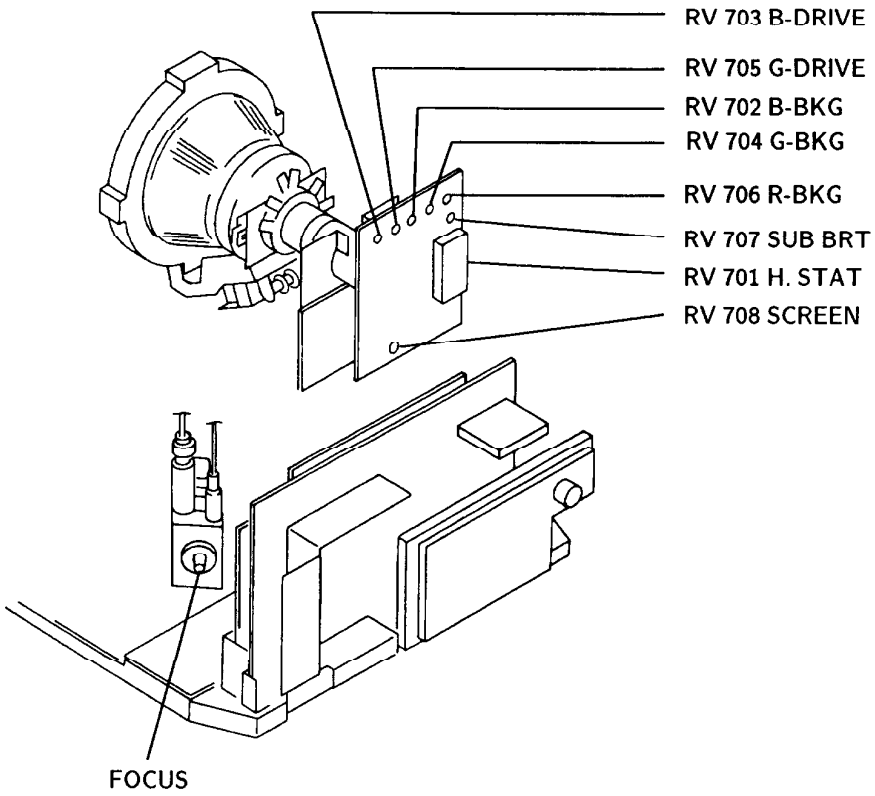
3-4. SCREEN(G 2) and WHITE BALANCE

[SCREEN(G2)]

1. Input dots patteren.
2. Set the PIC control at minimum and set the BRT control at maximum.
3. Confirm the BKG voltage is less than 180 Vdc when turning RV 706 (R.BKG), RV 704 (G.BKG) and RV 702 (B.BKG).
4. Note the color when becomes visible first when turning RV 708 (SCRN).

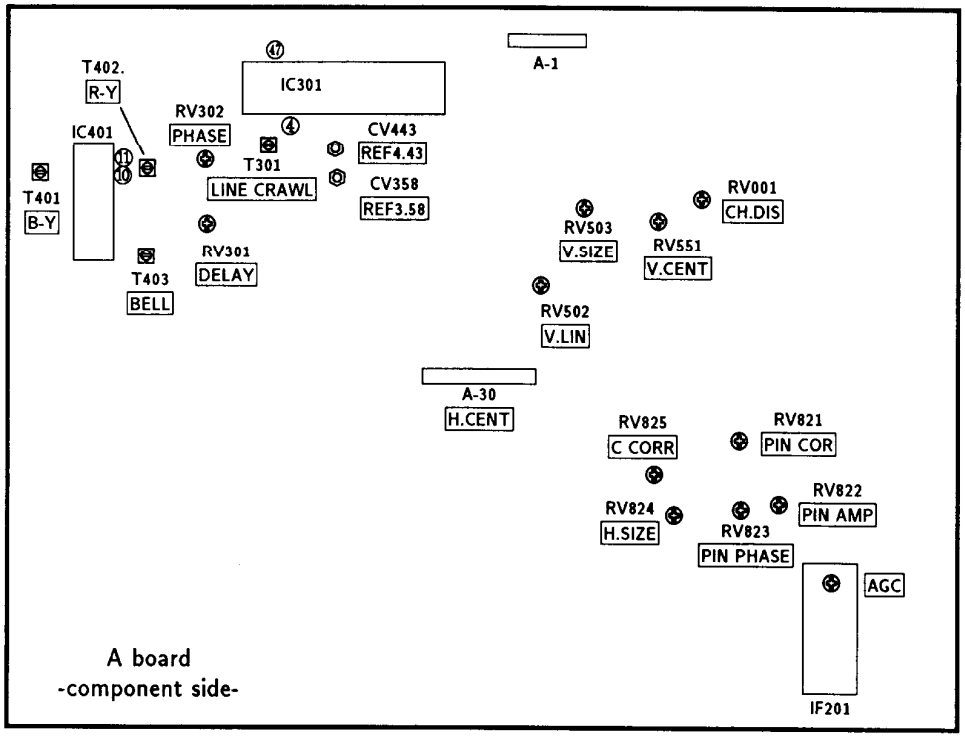
[WHITE BALANCE (Cut off)]

1. Input collor bar signl.
2. Set the PIC control to minimum and set the BRT control at normal.
3. Turn RV 703 (B.DRIVE) and RV 705 (G.DRIVE) fully clockwise.
4. Set RV 706 (R.BKG), RV 704 (G.BKG) and RV 702 (B.BKG) to minimum.
5. Turn RV 707 (SUB BRT) slowly to obtain a faintly visible blue stripe.
6. Switch over all white signal.
7. Adjust BKG controls for best white balance.
8. Set the PICTURE control to maximum. Observe the screen and adjust the DRIVE controls for best white balance.
9. Repeat steps 7 and 8.



SECTION 4
CIRCUIT ADJUSTMENT

4-1. A BOARD ADJUSTMENTS

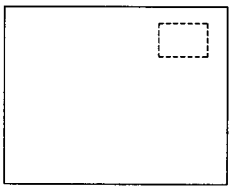


RF AGC ADJUSTMENT (IF201)

1. Receive a strong off-air signals.
2. Adjust RF AGC VR control so that snow noise and cross-modulation just disappear from the picture.

Channel display POSITION ADJUSTMENT (RV001)

1. Set PIC control to maximum.
2. Adjust RV001 so that the channel display should be positioned at up-right on the screen.



A • P • C ADJUSTMENT (CV443) (PAL)

1. Input the PAL color-bar signal.
2. Set the PIC, COL, and BRT controls to normal.
3. Short circuit between pin ④ and pin ㊼ of IC301 with jumper.
4. Adjust CV443 for suitable color intensity.
5. Remove a jumper.

REF OSC 3.58 ADJUSTMENT (CV358) (NTSC 3.58)

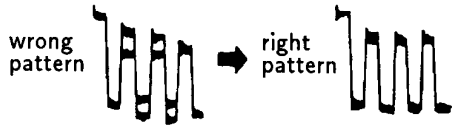
1. Short circuit between pin ④ and pin ㊼ of IC301 with a jumper.
2. Set the PIC, COL and BRT controls to normal.
3. Input NTSC 3.58 color-bar signal.
4. Adjust CV358 for suitable color intensity.
5. Remove the jumper.

ANTI PAL, LINE CRAWLING ADJUSTMENT (RV301,RV302,T301)

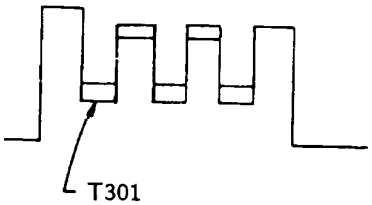
• ANTI PAL ADJUSTMENT

1. Input PAL color-bar signal.
2. Set the PIC, COL and BRT controls to normal.
3. Connect the oscilloscope to pin ③ of A-1 connector.
4. Adjust RV301 (DELAY) and RV302 (PHASE) to obtain the waveform as shown below.

• LINE CRAWLING ADJUSTMENT

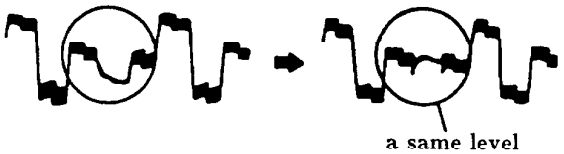


1. Input the PAL color-bar signal.
2. Set the PIC, COL and BRT controls to normal.
3. Connect the oscilloscope to pin ③ of A-1 connector.
4. Adjust T301 for minimum line crawling.



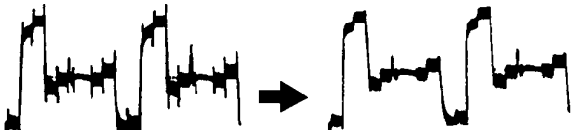
DISCRI ADJUSTMENT (T401,T402)

1. Input the SECAM color-bar signal.
2. Connect the dual-trace oscilloscope to the pin ⑪ (B-Y) and pin ⑩ (R-Y) of IC401.
3. Adjust T402 (R-Y) and T401 (B-Y) as shown the following figure.

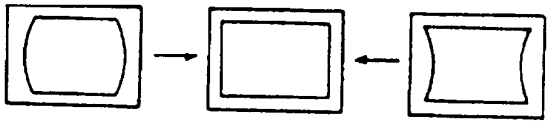


BELL FILTER ADJUSTMENT (T403)

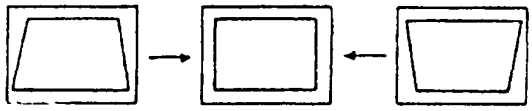
1. Input the SECAM color-bar signal.
2. Connect the oscilloscope to pin ⑩ (R-Y) of IC 401.
3. Adjust T403 as shown the following figure.



RV822 PIN ANP (PINCUSHION AMPLIFIER)

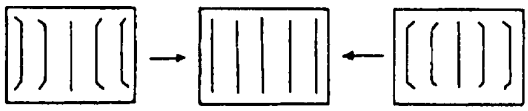


RV823 PIN PHASE (PINCUSHION PHASE)

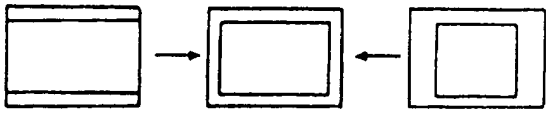


RV821 PIN COR (PINCUSHION CORRECT)

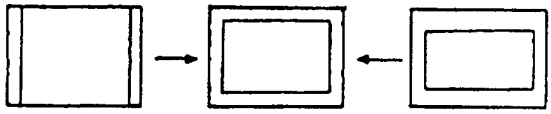
RV825 C.CORR(CORNER CORRECT)



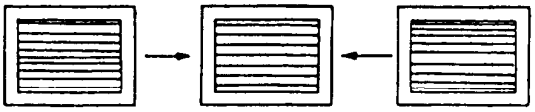
RV824 H.SIZE (HORIZONTAL SIZE)



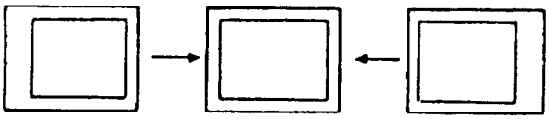
RV503 V.SIZE (VERTICAL SIZE)



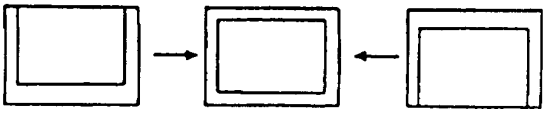
RV502 V.LIN (VERTICAL LINEARITY)



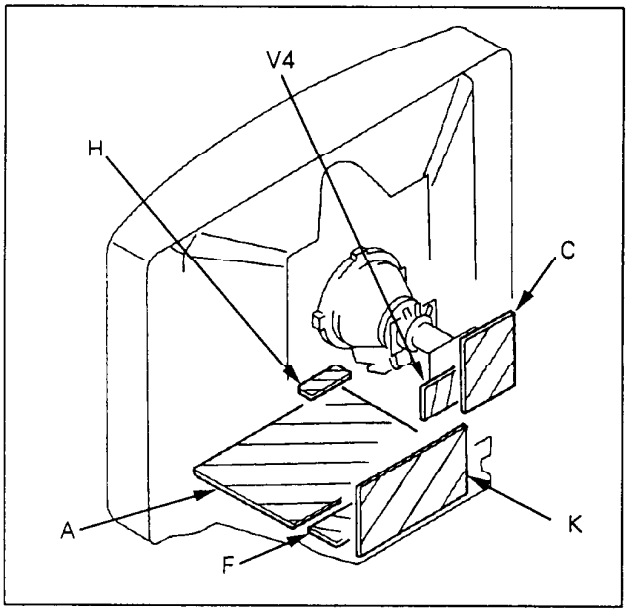
CN550 H.CENT (HORIZONTAL CENTER)



RV551 V.CENT (VERTICAL CENTER)



5-3. CIRCUIT BOARDS LOCATION



5-4. SCHEMATIC DIAGRAMS AND PRINTED WIRING BOARDS

Note:

- All capacitors are in μF unless otherwise noted. pF: μμF 50 WV or less are not indicated except for electrolytic and tantalums.
- All resistors are in ohms.
  kΩ =1000Ω , MΩ =1000kΩ
- Indication of resistance, which does not have one for rating electrical power, is as follows.

Pitch: 5 mm
Rating electrical power ¼ W

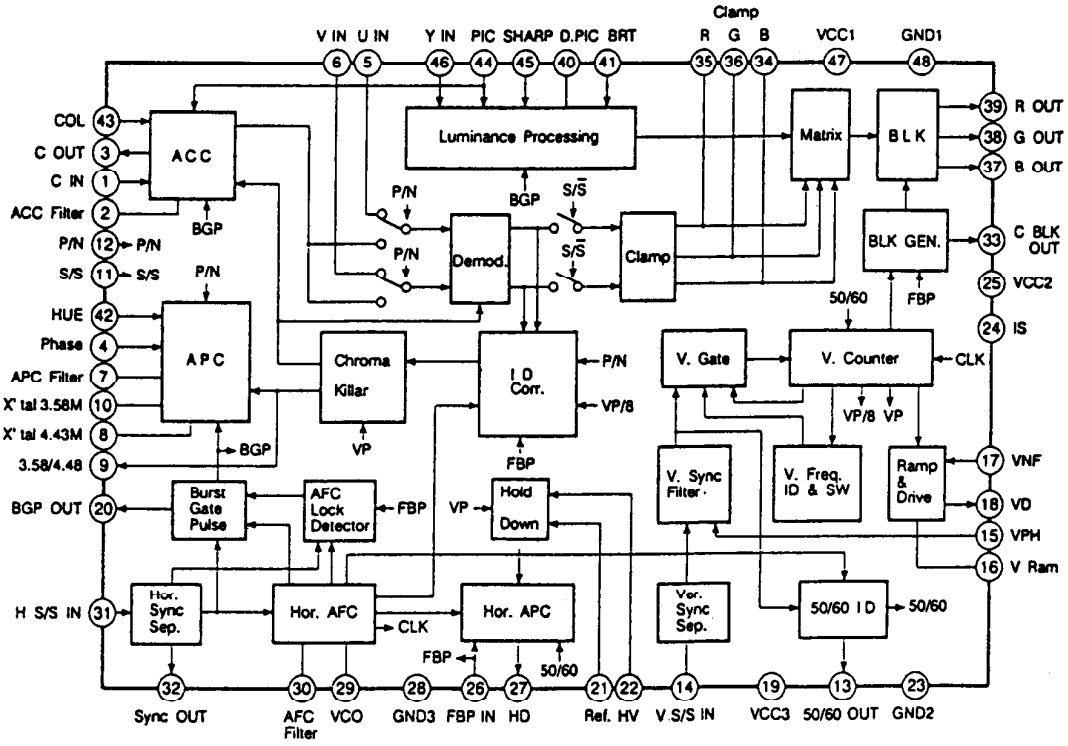
- : nonflammable resistor.
- △ : internal component.
- : panel designation, or adjustment for repair.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.
- : earth-chassis.
- Readings are taken with a color-bar signal input.
  no mark : with PAL color-bar signal received.
  ( ) : with SECAM color-bar signal received.
  〈 〉 : with NTSC3.58 color-bar signal received.
- Readings are taken with a 10MΩ digital multimeter.
- Voltage are dc with respect to ground unless otherwise noted.
- Voltage variations may be noted due to normal production tolerances.
- All voltages are in V.
- Circled numbers are waveform references.
- : B+ bus.
- : signal path. (RF)

Reference information

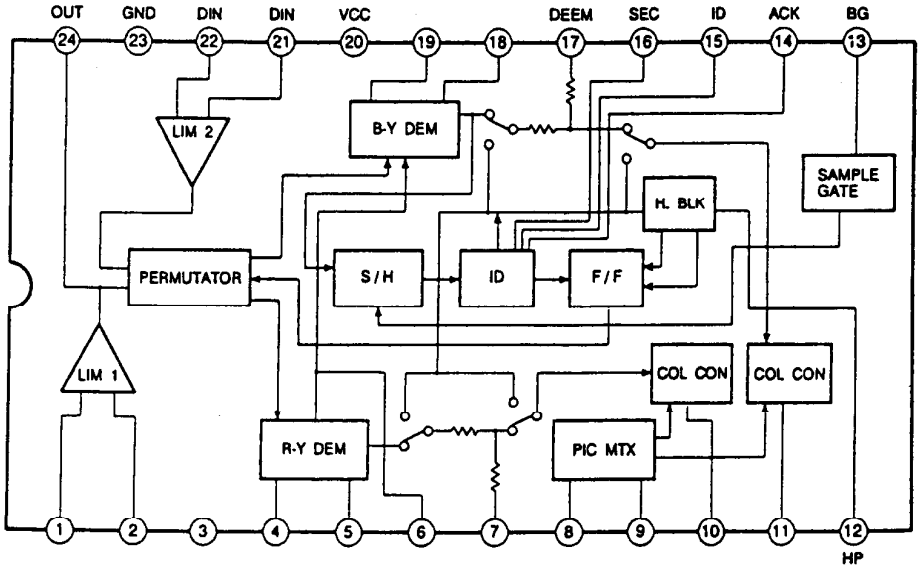
RESISTOR	: RN	METAL FILM
	: RC	SOLID
	: FPRD	NONFLAMMABLE CARBON
	: FUSE	NONFLAMMABLE FUSIBLE
	: RS	NONFLAMMABLE METAL OXIDE
	: RB	NONFLAMMABLE CEMENT
	: RW	NONFLAMMABLE WIREWOUND
	: ※	ADJUSTMENT RESISTOR
COIL	: LF-8L	MICRO INDUCTOR
CAPACITOR	: TA	TANTALUM
	: PS	STYROL
	: PP	POLYPROPYLENE
	: PT	MYLAR
	: MPS	METALIZED POLYESTER
	: MPP	METALIZED POLYPROPYLENE
	: ALB	BIPOLAR
	: ALT	HIGH TEMPERATURE
	: ALR	HIGH RIPPLE

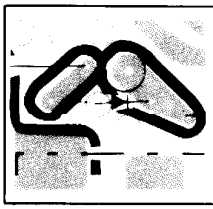
Note: The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

• A BOARD IC301 CXA1213S



• A BOARD IC401 CXA1214P



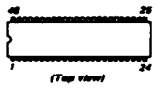


NOTE:

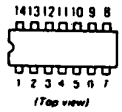
The circuit indicated as left contains high voltage of over 600 Vp-p. Care must be paid to prevent an electric shock in inspection or repairing.

5-5. SEMICONDUCTORS

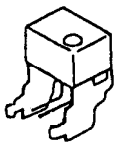
CXA1213S



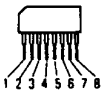
CXK5864BSP-10L



KEY-C00SV-F

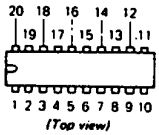


LA7016



LM393P
RC4558P
ST24C02AB1
TEA2031A

LM1036N



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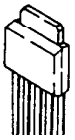

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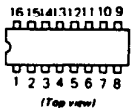

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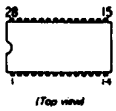

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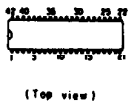

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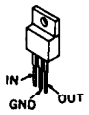

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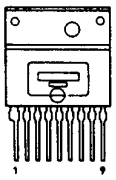

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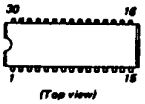

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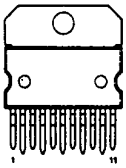

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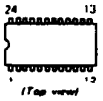
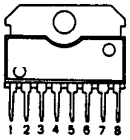


μ PC1498H



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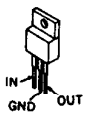

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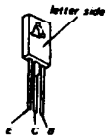

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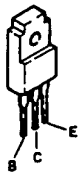

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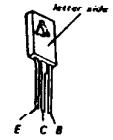

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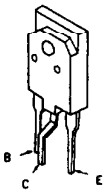

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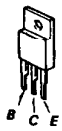

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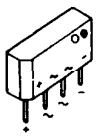

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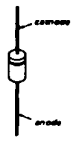

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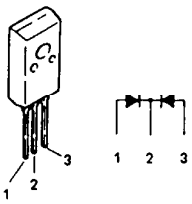

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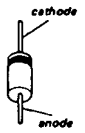

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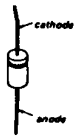

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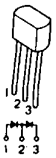
MC921

MC932



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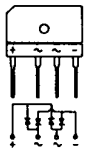

RD10ES-B2
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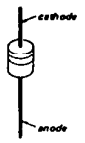
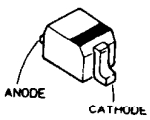
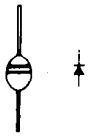
RD13ES-B2
RD13ES-B3
RD39ES-B2
RD5.1ES-B2
RD5.6ES-B2
RD6.2ES-B2
RD6.8ES-B3
RD7.5ES-B1
RD7.5ES-B3
RD9.1ES-B1
RD9.1ES-B2
RD9.1ES-B3
1SS119



RD10SB1



U05G



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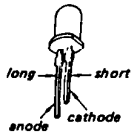


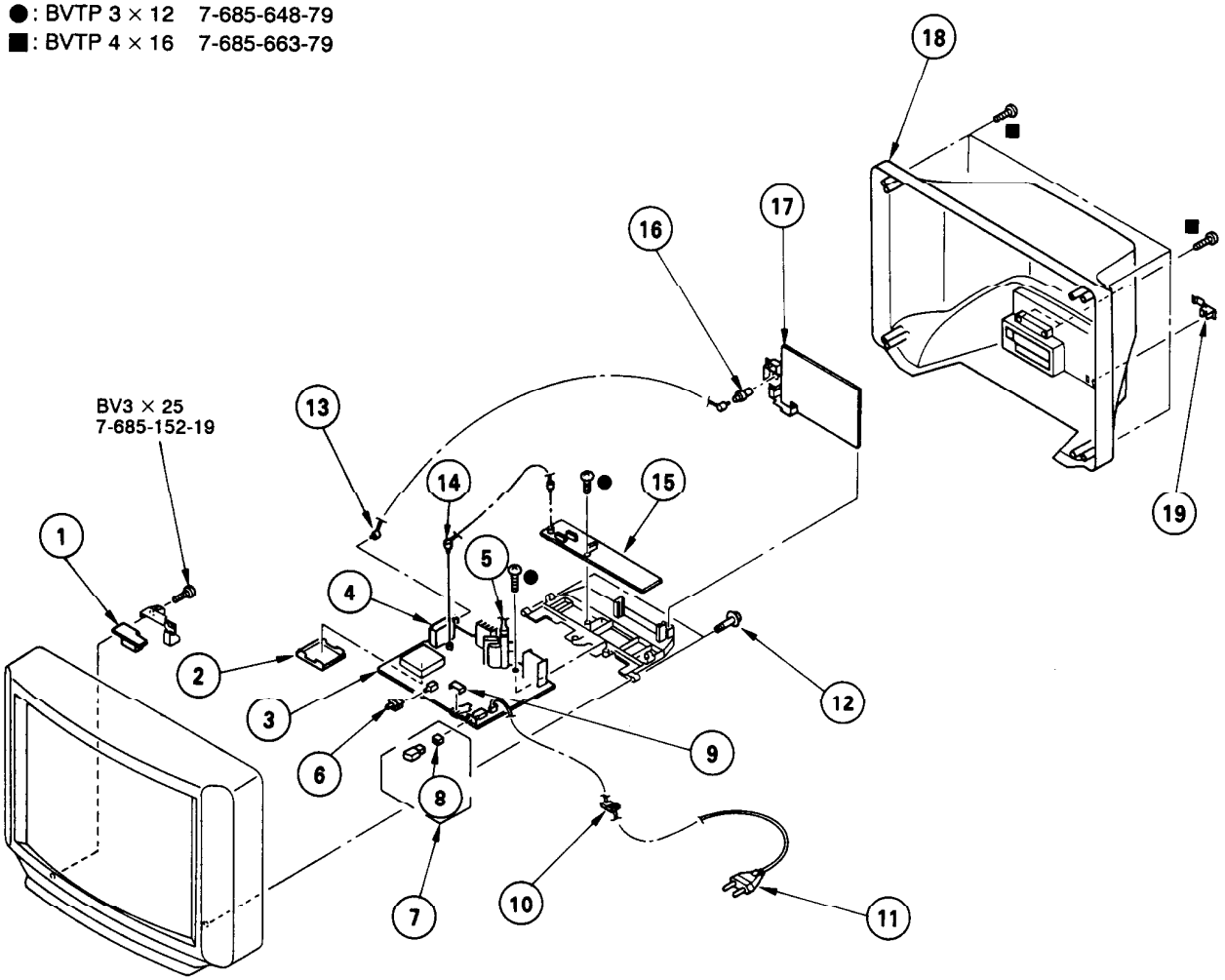
SECTION 6
EXPLODED VIEWS

NOTE:
- Items with no part number and no description are not stocked because they are seldom required for routine service.
- The construction parts of an assembled part are indicated with a collation number in the remark column.
- Items marked " ★ " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

The components identified by shading and mark ⚠ are critical for safety.
Replace only with part number specified.

6-1. CHASSIS

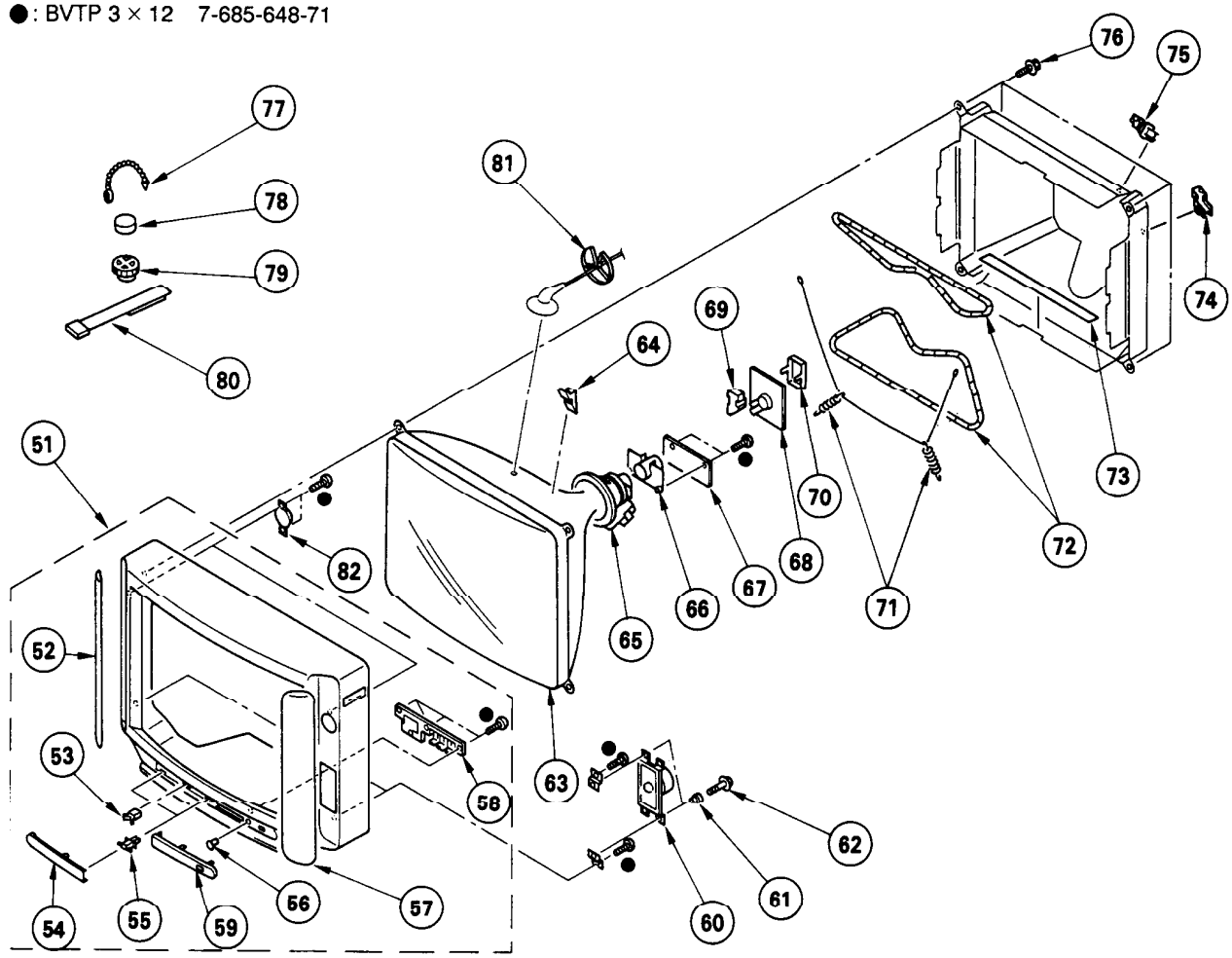
●: BVTP 3 × 12 7-685-648-79
■: BVTP 4 × 16 7-685-663-79

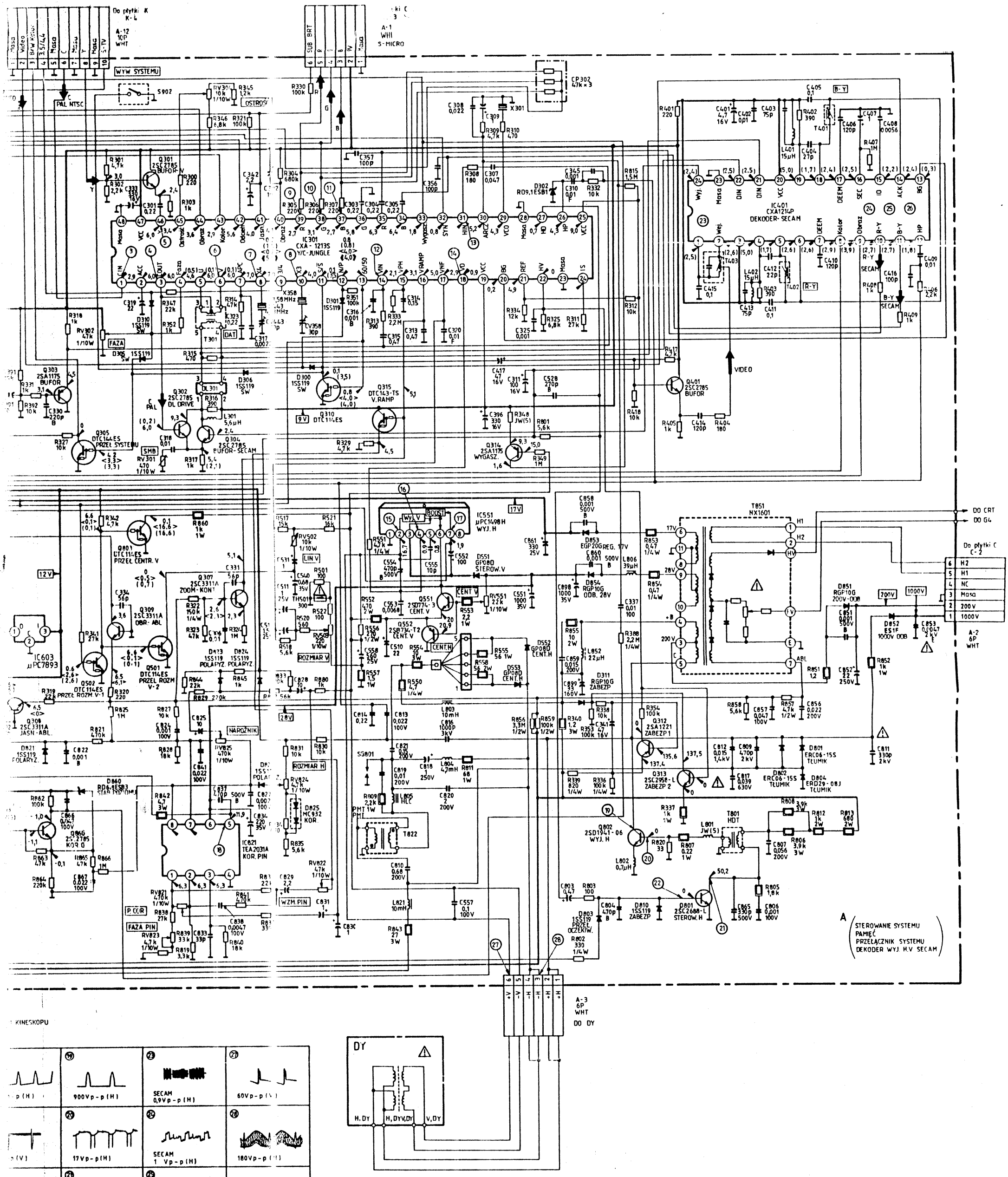


The components identified by shading and mark ⚠ are critical for safety.
Replace only with part number specified.

6-2. PICTURE TUBE

●: BVTP 3 × 12 7-685-648-71

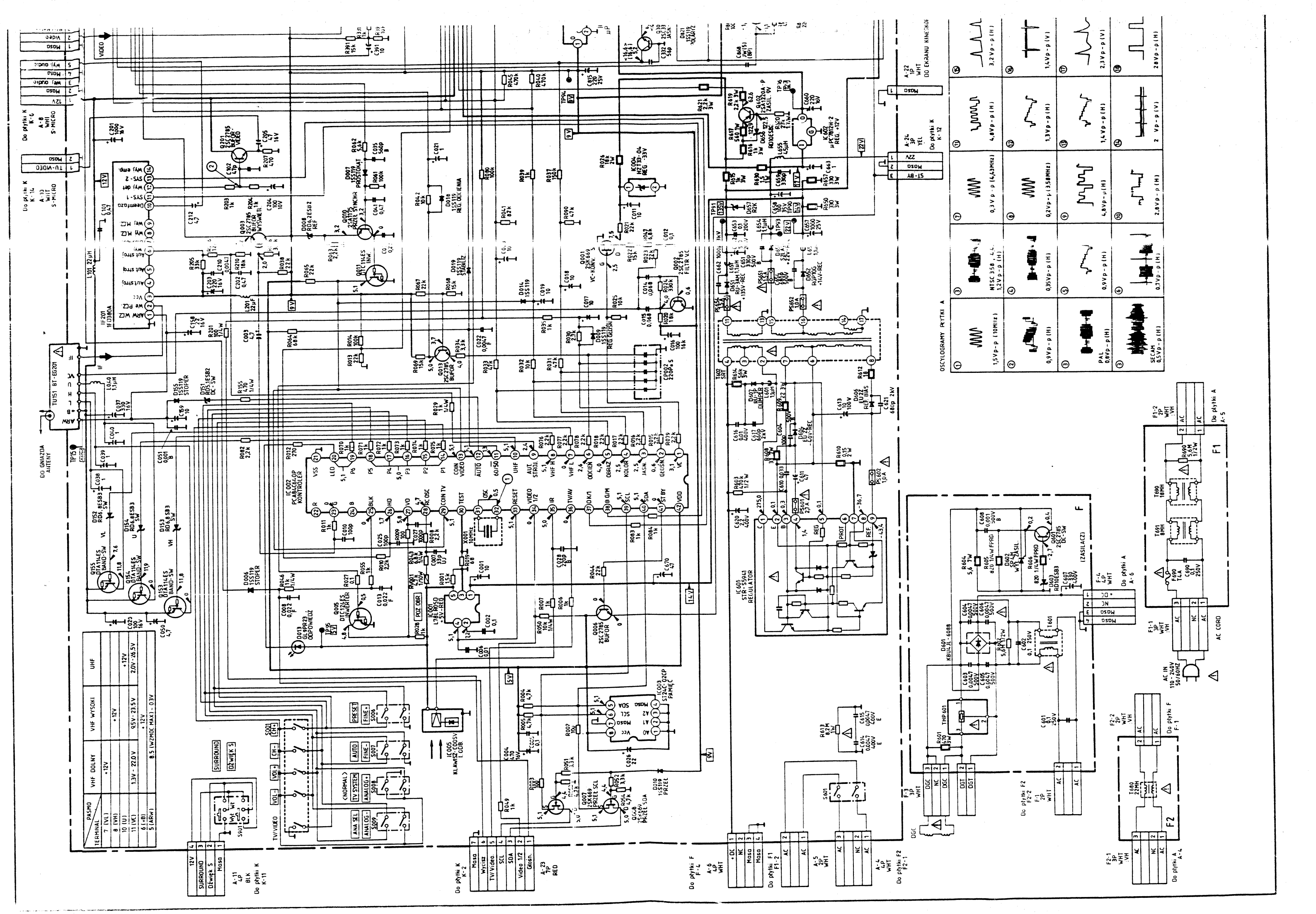


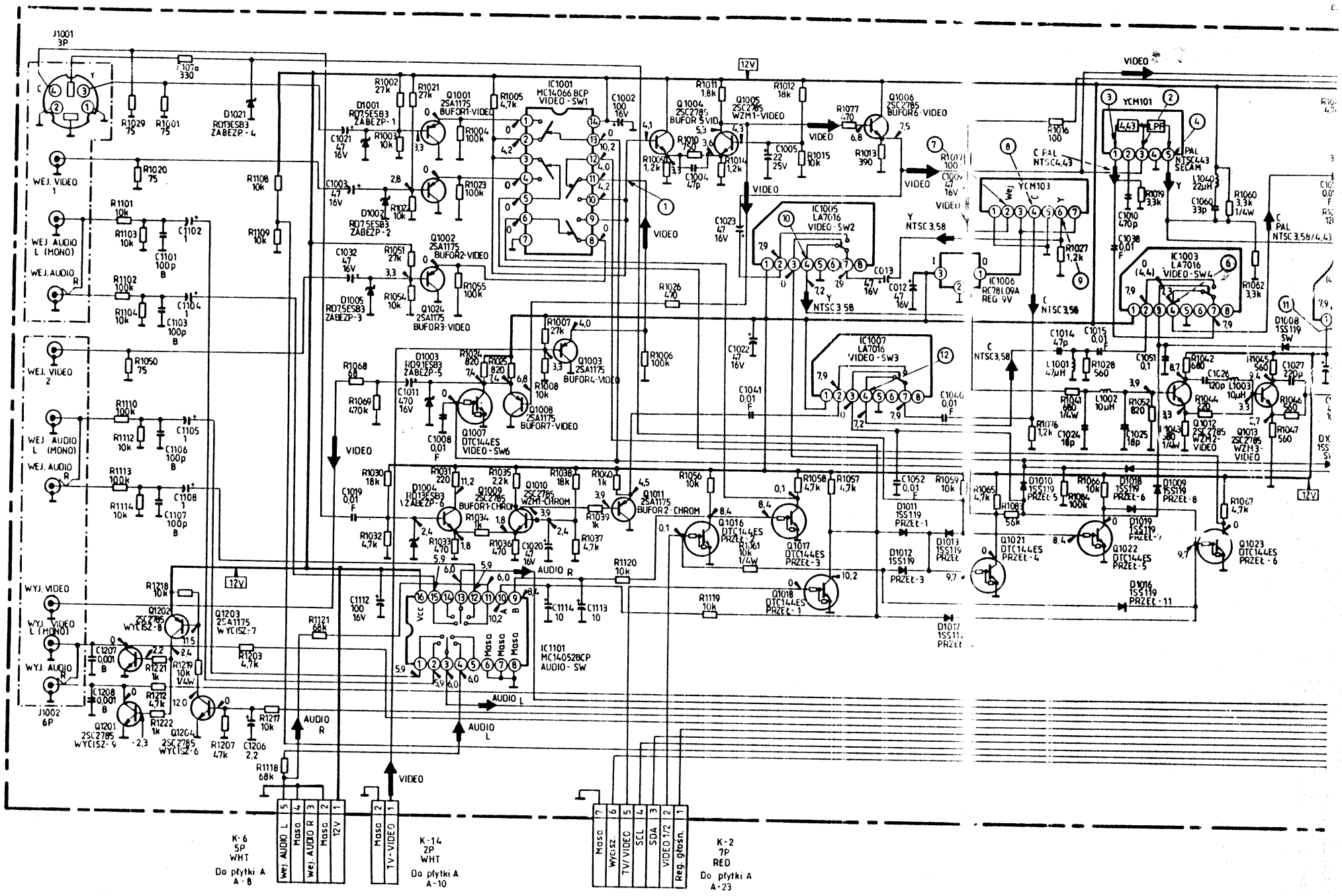


KINESKOPU

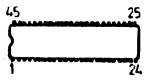
p (H)	⑲ 900Vp-p (H)	㉓ SECAM 0,9Vp-p (H)	㉗ 60Vp-p (V)
p (V)	⑳ 17Vp-p (H)	㉔ SECAM 1 Vp-p (H)	㉘ 180Vp-p (H)
p (V)	㉑ 100Vp-p (H)	㉕ SECAM 1,4Vp-p (H)	
(H)	㉒ 1,4Vp-p (H)	㉖ 3,6Vp-p (H)	

UWAGA:
SURROUND - efekt przestrzennego poszerzenia barwy dźwięku


OSCYLOGRAMY PŁYTKI A
Do płytki K K-6 A-8 WHT S-MICRO
Do płytki K K-14 A-10 WHT S-MICRO
DO GNIAZDA ANTENY
TU151 BT-60201
IF201 TF0380A
IC002 PCA84C640P KONTROLER
IC003 ST24C02CP PAMIĘĆ
IC004 H2T39-04 REG. -33V
IC005 KLAWISZ C005V 1.00B
IC601 STR S5941 REGULATOR
IC602 µPC7812H-2 REG. +12V
TUNER
SURROUND
DŹWIĘK S
Do płytki K K-11
A-11 4P BLK
Do płytki K K-2
A-23 7P RED
Do płytki F F-4
A-6 4P WHT
Do płytki F F1-2
A-5 2P WHT
Do płytki F2 F2-1
A-4 4P WHT
Do płytki F F1-1
A-3 3P WHT
Do płytki F2 F2-2
A-2 2P WHT
Do płytki A A-5
Do płytki A A-6
Do płytki A A-4
AC CORD
AC IN 110 - 240V 50/60HZ
DO EKRANU KINESKOPU
A-22 1P WHT
A-24 3P YEL
Do płytki K K-12
F1 F2
F1-1 3P WHT VH
F1-2 2P WHT VH
F2-1 3P WHT VH
F2-2 2P WHT VH
F3 3P WHT
F4 4P WHT
(ZASILACZ)
TERMINAL
PASMO
VHF DOLNY
VHF WYSOKI
UHF
7 (VL)
8 (VH)
10 (U)
11 (K)
6 (-8)
5 (ARW)
+12V
9.5V - 23.5 V
2.0V - 26.5V
8.5 (WZMOC MAXI - 0.3V



CXA1213S



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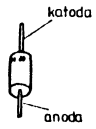
DTC143TS
DTC144ES
2SC3327

ERD29-08J



L78LR05D-MA

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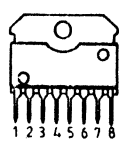
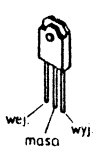
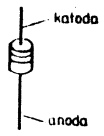


2SD1941



RD10ES-T1B2
RD10ES-T1B3
RD13ES-T1B3
RD51ES-T1B2
RD56ES-T1B2
RD62ES-T1B2
RD68ES-T1B3
RD75ES-T1B3
RD91ES-T1B1
RD91ES-T1B2
RD9.1ES-T1B3
1SS119



CXA1214P

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R2K
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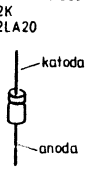

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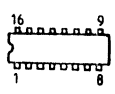
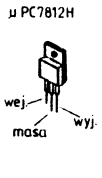


µPC7812H



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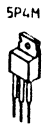

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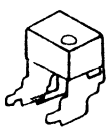

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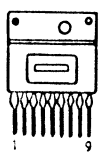

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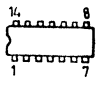

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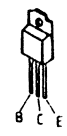

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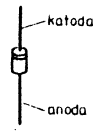

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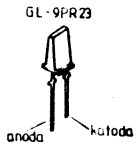

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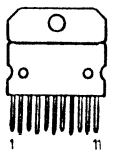

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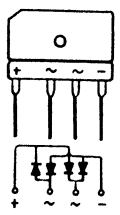

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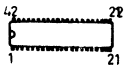

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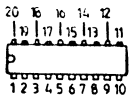

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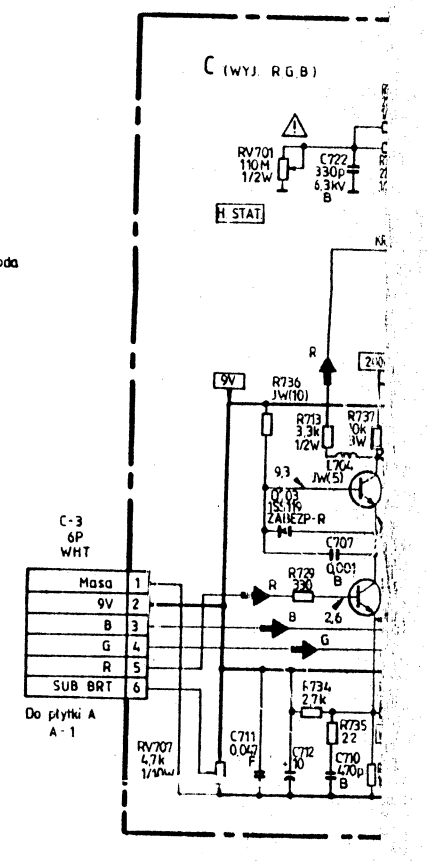

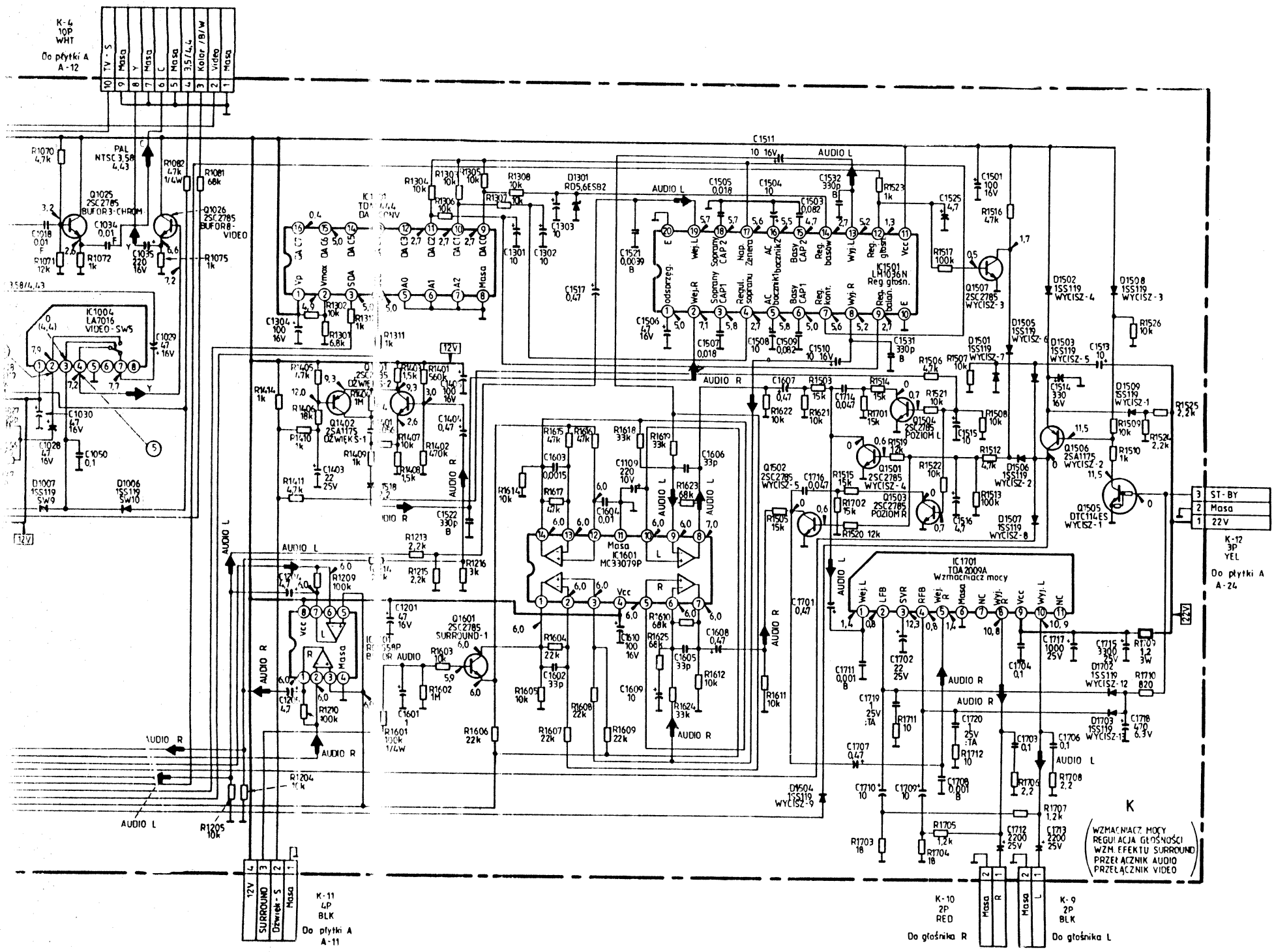

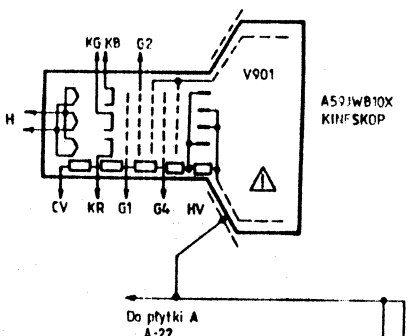

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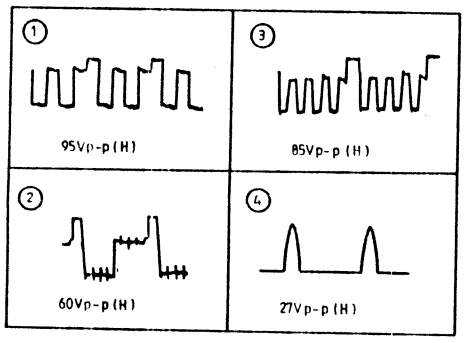

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